User's Manual

HP 9000 Model A-180

Manufacturing Part Number : Z4045-90002
February 2000

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Revision History

First Edition Initial Release.

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1 A-Class System Overview and Reference

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A-Class Server - System Overview

The A-Class server is a compact addition to the HP9000 server family, targeted at the ISP server market. The A-Class server design allows the use of existing qualified peripherals and I/O add-in options. It is a PCXL-2 (PA-7300 RISC Processor) based platform designed to support the UNIX Internet Service Provider (ISP) market.

System Hardware Overview

A-Class server hardware has the following characteristics:

- It has a two rack unit height that makes it suitable for racked (up to 20 per rack) or stand-alone installations.
- It comes configured with one (1-way) 180 MHz. PA-7300 RISC Processor. An additional (optional) 1Mb of 2nd-level cache is available.
- It has eight RAM memory slots that can use 128, 256 or 512MB memory modules.
- There are two I/O slots each capable of handling either PCI or HSC add-in cards. One slot is Access Port (AP) card capable.
- The embedded disk bay is capable of supporting 2 single-ended type-1 SCSI drives.
- The server supports the following core I/O functions:

  One 10/100 Base-T port supports connection to the primary LAN.

  One 10 Base-T Port supports connection to the integrated web-based console.

  One 9-Pin RS-232 port supports connection to an ASCII console.

  The internal SCSI bus is available externally to connect additional single-ended Type-1 SCSI devices.

System Software Overview

A-Class servers require the HP-UX 10.20 or 11.0 operating system with an Independent Peripheral Release (IPR) date of October 1998 (9810) or later.

NOTE HP-UX is the only supported operating system for A-Class servers.

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A-Class Server Service Reference Information

Overview

Service reference data consists of the following:

- 11”x14” maintenance label
- A A-Class Server System Block Diagram for maintenance personnel and operators.
- The A-Class Server System Regulatory Compliance Statements required by the U. S. government and required by some countries that import HP products.

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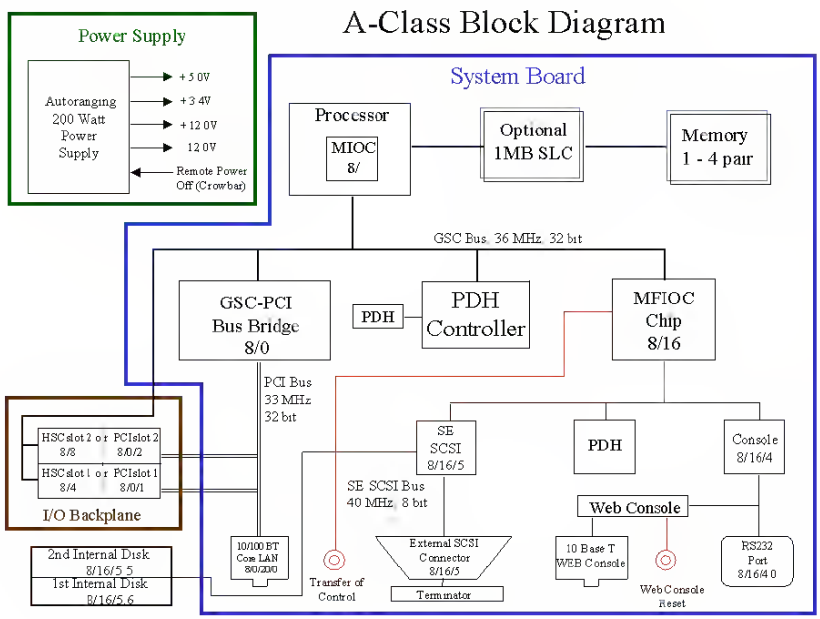
A-Class Server System Block Diagram

Overview

The A-Class server block diagram is included for information.



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A-Class Server System Regulatory Compliance Statements

Overview

Regulatory Compliance statements are required by some countries for international importation of A-Class servers. The following information is provided:

- Regulatory Information
- Safety
- Declaration of Conformity
- FCC STATEMENT (USA Only)
- FCC Regulations for Telephone Line Interconnection
- Canada RFI Statement
- European Union RFI Statement
- Japan RFI Statement
- Korean RFI Statement
- Taiwan RFI Statement
- Japan-Only JATE Mark
- Japan Harmonic Statement
- Acoustics (Germany)
- UK General Approval (United Kingdom only)
- Internal Modem and HP A2991-600xx Line Access Module (LAM)
- Terminal DOC (Canada only)
- National Post and Telecom Agency Statement (Sweden only)
- AUSTEL Telecom Statement (Australia only)
- New Zealand and Telecom Statement (New Zealand only)

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Regulatory Information

For your protection, this product has been tested for conformance to various national and international regulations and standards. The scope of this regulatory testing includes electrical and mechanical safety, electromagnetic emissions, immunity, acoustics and hazardous materials.

When required, approvals are obtained from third party test agencies. Approval marks appear on the product label. In addition, various regulatory bodies require some information under the headings listed in this section.

Safety

This product has not been evaluated for connection to an "IT" power system (ac distribution system having no direct connection to earth according to IEC 950).

Locate the AC outlet near the computer! The ac power cord is this product's main ac disconnect device and must be easily accessible at all times.

Battery Notice

This product contains a Lithium battery.

This battery is not to be removed or replaced by the user. If the battery needs to be replaced, contact your Hewlett-Packard authorized service personnel.

CAUTION Lithium batteries may explode if mistreated. Do not recharge, disassemble, or dispose of in a fire.

Please properly recycle all used batteries.

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Declaration of Conformity

FCC STATEMENT (USA Only)

The United States Federal Communications Commission has specified that the following notice be brought to the attention of users of this product:

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Hewlett-Packard's system verification tests were conducted with HP-supported peripheral devices and HP shielded cables, such as those you receive with your computer. Changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment. Cables used with this device must be properly shielded to comply with the requirements of the FCC.

FCC Regulations for Telephone Line Interconnection

- This equipment complies with Part 68 of the FCC rules. On the outside surface of this equipment is a label that contains, among other information, the FCC registration, the FCC registration number and ringer equivalence number (REN). If requested, this information must be provided to the telephone company.
- This equipment uses the following Universal Service Code (USOC) jacks: RJ11C or RJ11W (single line).
- The REN is used to determine the quality of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by total RENs, contact the telephone company to determine the maximum REN for the calling area.
- If this equipment causes harm to the telephone network, the telephone company will, where practicable, notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.
- The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.
- If trouble is experienced with this equipment, please contact: Hewlett-Packard Company, Response Center, 20 Perimeter Summit Boulevard, Atlanta, GA 30319 U.S.A. 1 (800) 633-3600 (Toll Free - North America Only) or 1 (404) 648-0000 (Main Number)

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for repair and/or warranty information. If the trouble is causing harm to the telephone network, the telephone company may request that you remove the equipment from the network until the problem is resolved.

- No repairs are to be made by you. Repairs are to be made only by Hewlett-Packard or its licensees. Unauthorized repairs void registration and warranty.
- This equipment cannot be used on telephone company-provided coin service. Connection to Party Line Service is subject to state tariffs. (Contact the state public utility commission, public service commission, or corporation commission for information).
- If so required, this equipment is hearing-aid compatible.

Canada RFI Statement

- This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
- Cet appareil numÅrique de la classe A respecte toutes les exigences du RÉglement sur le matÅriel brouilleur du Canada.

European Union RFI Statement

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

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Japan RFI Statement

この装置は，第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。

従って，住宅地域またはその隣接した地域で使用すると，ラジオ，テレビジョン受信機等に受信障害を与えることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

Korean RFI Statement

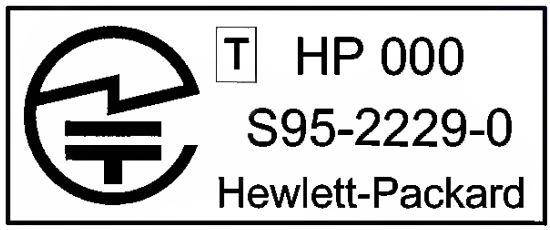
사용시 안내문 (A급 기기)

이 기기는 업무용으로 전자파장해검정을 받은 기기이오니 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

Taiwan RFI Statement

警告使用者：這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Japan-Only JATE Mark



Japan Harmonic Statement

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Acoustics (Germany)

Acoustic noise level per ISO 9296 (25° C):

LpA_m <57dB (operators position)

Geräuschemission nach ISO 9296 (25° C):

LpA_m <57dB (Arbeitsplatte)

UK General Approval (United Kingdom only)

Pursuant to Section 22 of Telecommunications Act of 1984, this product is approved for indirect connection to Public Telecommunications systems within the United Kingdom under the General Approval number NS/G/1234/J/100003.

Internal Modem and HP A2991-600xx Line Access Module (LAM)

The following warnings apply to the use of the HP 2991-60001 internal modem and HP A2991-600xx LAM that may be provided with the computer.

Terminal DOC (Canada only)

NOTE The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunication network protective operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

The Load Number (LN) assigned to each terminal device denotes the percentage of total load to be connected to a telephone loop which is used by the device to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all devices does not exceed 100. The load number for this product is 33.

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CAUTION Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

National Post and Telecom Agency Statement (Sweden only)

The LAM Interface shall be connected to SELV (max.42.4 V peak, or 60 V DC) according to EN 60950. (The internal modem complies with this requirement.)

AUSTEL Telecom Statement (Australia only)

When setting the number of automatic redials for the modem, ensure the following:

The number of automatic redials that the modem performs should be limited to a maximum of 9 redials plus the original call. If the above retries are unsuccessful, no further attempts should be made to the same number for a minimum period of 5 minutes.

CAUTION Failure to set the modem, and any communication software used with the modem to the values contained in the listing will result in the modem being operated in a non-compliant manner. Consequently, there would be no permit in force for this equipment, and the Telecommunications Act 1991 prescribes a penalty of A$12,000 for the connection of non-permitted equipment.

Australian C-Tick Label

New Zealand and Telecom Statement (New Zealand only)

When using an application software that allows the setting of automatic redialing, the following guidelines should be followed:

- Not more than five call attempts to the same number within a one hour period.
- A minimum of 60 seconds between each attempt.
- Not more than a total of 10 call attempts to the same number.

Any setting that violates the above guidelines will cause the equipment to go out of compliance, and thus no Telepermit will be in force for this equipment which will make it subject to penalties.

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The operation of this equipment on the same line as telephones or other equipment with audible warning devices or automatic ring detectors will give rise to bell tinkle or noise and may cause false tripping of the ring detector. Should such problems occur, the user is not to contact Telecom Faults Service.

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2 A-Class Server Installation

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A-Class Server System Installation

Overview

The sections listed below describe the procedures you will use to prepare for, install, and begin operation of, your A-Class server:

A-Class Server Site Preparation. Contains environmental requirements for preparing the area where your server is to be located.

Stand-Alone A-Class Server Unpack and Install Instructions. Details what you will find when you open the carton containing your A-Class server and how to set it up for stand-alone operation.

Cabinet-Mounted A-Class Server System Unpack and Install. Tells you how to install and connect the server to external devices and power, either as a stand-alone unit or in an HP-supported cabinet. Unpacking, set up, and connection information is also included for those who ordered a cabinet from the factory with one or more servers installed,

A-Class Server System Software Configuration. Tells you how to install memory (RAM), cache memory, embedded disk and I/O card add-on components.

A-Class Server Power Up and Boot Procedures. Leads you through the process for powering up external devices and the server, gives the software commands for customizing the A-Class Secure Web Console IP address, and lists the steps required for booting the server to an operating state.

A-Class Server System Software Configuration. Directs you to the software commands necessary for preparing both the A-Class server and the A-Class Secure Web Server for operation.

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A-Class Server Site Preparation

Overview

This section contains the following environmental requirements for preparing a site for the A-Class Server:

Space Requirements. Space requirements for both stand-alone and cabinet-mounted A-Class servers.

Input Power Requirements. Nominal input voltage, nominal frequency, and typical current requirements.

Cooling Requirements. Operating and non-operating temperature extremes and relative humidity parameters.

Space Requirements

Stand-Alone Server Dimensions

The physical characteristics of the A-Class server are listed as follows:

Dimension		
Height	8.89 cm	(3.5 in.)
Width	43.18 cm	(17 in.)
Depth	58.42 cm	(23 in.)
Weight	9.98kg	(22 lbs)

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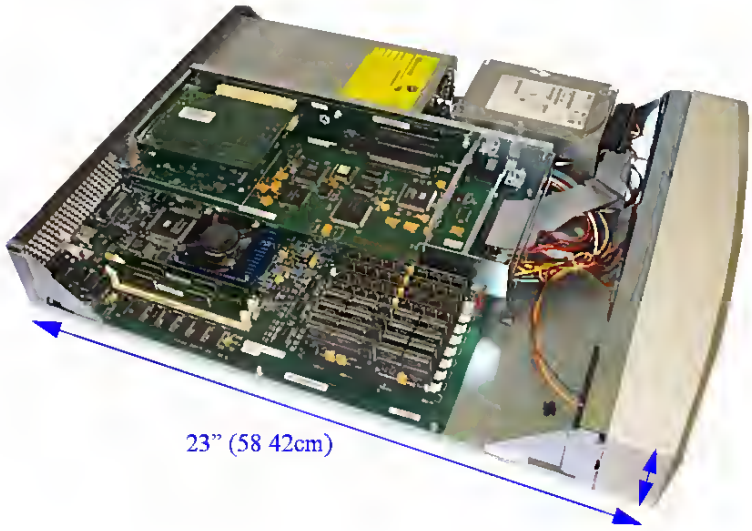

Stand-Alone Server Minimum Service Access Requirements

Access Location		
Rear	15 cm	(6 in.)
Sides	7.5 cm	(3 in.)
Front	7.5 cm	(3 in.)

CAUTION Stacking A-Class servers in any manner and mounting in any cabinet other than a Hewlett-Packard approved cabinet, is not supported.

While they are constructed to be strong, A-Class servers have not been tested for stacking load carrying capacity. Failure to follow this precaution may result in major damage to the server.

Cabinet Dimensions

A-Class servers can be installed in any of the following cabinets:

Cabinet Product Number	Description	EIA	Max. A-Class Servers	External Dimensions (width x depth x height)	
				Centimeters	Inches
A4900A	Factory Integrated 1.25m x 19" Cabinet	25	12	59.7 x 100.3 x 125.7	23.5 x 39.5 x 49.5

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Cabinet Product Number	Description	EIA	Max. A-Class Servers	External Dimensions (width x depth x height)	
				Centimeters	Inches
A4901A	Factory Integrated 1.6m x 19" Cabinet	33	16	59.7 x 100.3 x 161.3	23.5 x 39.5 x 63.5
A4902A	Factory Integrated 2.0m x 19" Cabinet	41	20	59.7 x 100.3 x 196.9	23.5 x 39.5 x 77.5
J1502A	Field Integrated 1.25m x 19" Cabinet	25	12	59.7 x 100.3 x 125.7	23.5 x 39.5 x 49.5
J1501A	Field Integrated 1.6m x 19" Cabinet	33	16	59.7 x 100.3 x 161.3	23.5 x 39.5 x 63.5
J1500A	Field Integrated 2.0m x 19" Cabinet	41	20	59.7 x 100.3 x 196.9	23.5 x 39.5 x 77.5
C2785A	Field Integrated 1.1m x 19" Cabinet	21	10	61 x 91.4 x 111.8	24 x 36 x 44
C2786A	Field Integrated 1.6m x 19" Cabinet	32	16	61 x 91.4 x 162.6	24 x 36 x 64
C2787A	Field Integrated 2.0m x 19" Cabinet	41	20	61 x 91.4 x 203.2	24 x 36 x 80

Cabinet Minimum Service Access Requirements

Access Location		
Rear	61 cm	(24 in.)
Sides	NA	(NA)
Front	100.3	(39.5 in.)

Input Power Requirements

Input power requirements for the A-Class server are listed as follows:

- Nominal Input Voltage (VAC): 100 - 240

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- Nominal Frequency: 50 or 60 Hz
- Typical current requirements:

  1.0A at 100V

  0.43A at 240V.

If an Uninterruptible Power Supply (UPS) is to be used, ensure that it is properly connected to the server. Refer to the, External Connections section for UPS information.

Power cord plugs for stand-alone servers are configured to meet unique power configurations used all over the world.

Cabinet-mounted servers have the same power requirements as stand-alone servers. However, the power cords for cabinets are dependent on the type of Power Distribution Unit (PDU) operation.

PDU power cords with one end stripped are also available for attaching country-specific power plugs. Refer to the cabinet documentation for more electrical power information.

Cooling Requirements

Temperature Parameters

The operating and non-operating temperatures shown below are the extremes at which server parameters have been established.

Operating	Non-Operating
+5°-+35°C	-40° - +65°C
(41° - 95°F)	(-40° - 149°F)

Relative Humidity

Operating and non-operating relative humidity parameters are shown below:

Operating Relative Humidity	Non-Operating Relative Humidity
15% to 80%, non-condensing	5% to 90%, non-condensing

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Stand-Alone A-Class Server Unpack and Install Instructions

Overview

Unpacking the A-Class server consists of opening and unloading the carton. Inside the carton you will find, in addition to the server, an accessory kit and a packet containing installation instructions and regulatory information.

- Open and Unload the Carton
- Unpack the Server
- Open the Accessory Kit
- Open the Installation Instructions and Regulatory Information Packet

NOTE The following instructions do not apply to A-Class servers that are received pre-installed in a cabinet. These procedures pertain to individual servers, only.

Open and Unload the Carton

Step 1. Place the sealed carton on a work surface with the correct side up as indicated by the "This Side Up" symbol (below).

CAUTION Use sharp instruments carefully when unpacking electronics equipment. Failure to follow this precaution may result in personal injury or damage to components.

Step 2. Carefully open the carton, remove the contents, and set them on the work surface. Each carton will contain:

- The server.
- An accessory kit.
- A packet containing installation instructions and regulatory information.

NOTE Report any missing items to your local Hewlett-Packard office immediately. If there is obvious freight damage, contact your shipper immediately.

We recommend that you retain all packing materials in case any of the items received require return to Hewlett-Packard.

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Unpack the Server

CAUTION Do not set the server on its side, or in any position other than upright on its rubber "feet," for operation. Failure to observe this precaution may result in component damage or loss of system reliability.

Carefully unwrap the server and set it upright on the work surface.

Open the Accessory Kit

Open the Accessory Kit and verify that the contents agree with the packing list.

NOTE Plastic Front Anchor Bracket end caps are included in each kit. Do not discard them. They will be needed if the server is installed in a cabinet.

Open the Installation Instructions and Regulatory Information Packet

The Installation Instructions/Regulatory Information Packet contains the following information:

- Installation Instruction Sheet (A5182-96002), which includes:

  Basic cable connection information necessary to power on and boot the server to the Firmware Main Menu screen.

  The Universal Resource Locator (URL) for the A-Class Server home page on the World Wide Web.

- Regulatory Information. Contains consumer safety and regulatory statements for the United States and for those countries that require publishing and dissemination of their own consumer safety and regulatory data.

Installing a Stand-alone System

A-Class servers are compact in design and can be installed on table or desk tops in the same manner as any standard Personal Computer (PC).

Heating and cooling conditions must be met for the system to function at peak efficiency.

Attention must be paid to system access. There must be room for external connections on the rear of the server and there must be ready access to an electrical outlet with the correct electrical output. These environmental requirements are found in the section titled, A-Class Server Site Preparation.

When you have installed the server and are ready to connect external devices, refer to the,External Connections section.

To power up and boot the server, refer to the section titled, A-Class Server Power Up and Boot Procedures.

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Cabinet-Mounted A-Class Server System Unpack and Install

Overview

A-Class servers can be procured in two modes: stand-alone or pre-installed in a cabinet at the factory. Stand-alone servers can be configured for installation in an existing HP-supported cabinet. The following subsections provide system installation information:

- Information Sheet
- Installing a Factory-integrated Cabinet
- Installing a Stand-alone System in an HP-supported Cabinet
- External Connections

Information Sheet

Each system is packed with an Information Sheet that contains basic installation instructions. Review the Information Sheet thoroughly and follow the steps listed to perform the installation. The information sheet may refer you to the *LED Interpretation and Removal & Replacement Procedures* label located inside the cover, adhered to the top. This label provides instructions for interpreting LED combinations and information about system components.

Installing a Factory-integrated Cabinet

Unpacking the Cabinet

NOTE It is the customer's responsibility to inspect the shipping package for damage.

It is the Hewlett-Packard Customer Engineer's responsibility to remove the cabinet assembly from the shipping pallet.

WARNING **A fully configured 2.0 meter cabinet can weigh up to 362.8 kg (800 lbs). Be careful not to tip the cabinet while unpacking. Failure to heed this warning can result in serious injury or equipment destruction.**

To unpack the cabinet, perform the following steps:

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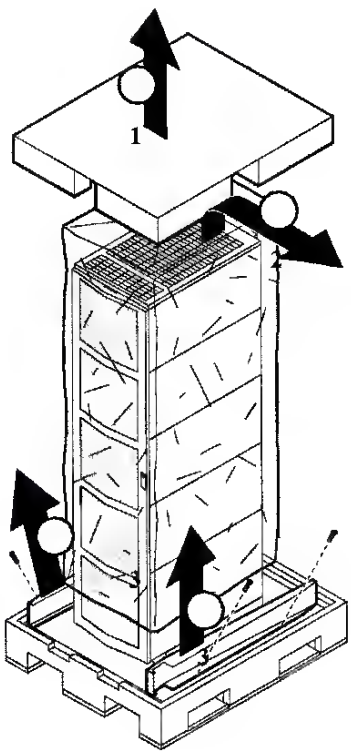
WARNING **Wear protective glasses while cutting the plastic bands around the shipping container. These bands are under tension. Failure to heed this warning can result in serious eye injury if the bands snap back and hit you in the face when cut.**

Step 1. Cut the plastic polystrap bands around the shipping container.

Step 2. Lift the cardboard top cap off of the shipping box (callout 1) and remove the packing material underneath (callout 2). Remove the screws that secure the ramps in place and lift the ramps out (callout 3).



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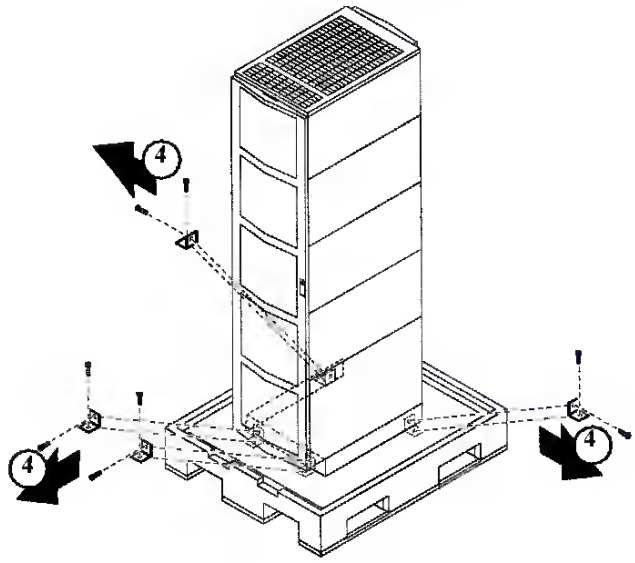
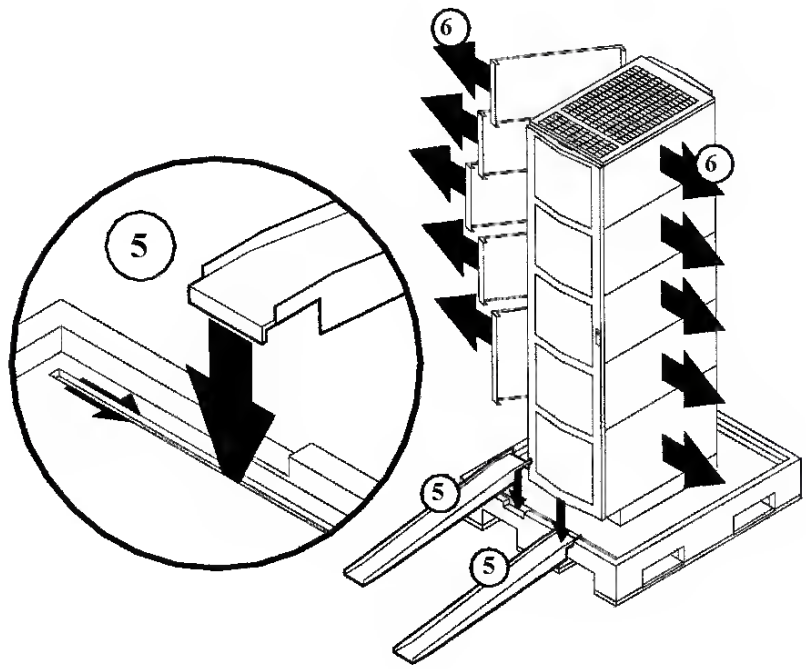
Step 3. Remove the brackets securing the cabinet to the pallet (callout 4).



Step 4. Insert the ramps in the notches provided on the pallet (callout 5). Remove the side panels from the cabinet and set them aside (callout 6).



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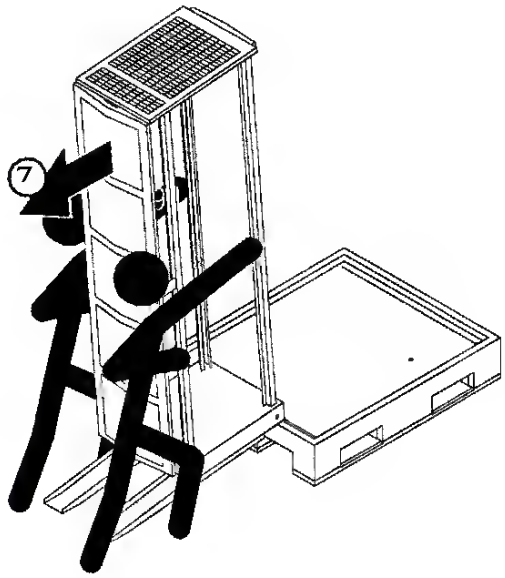
WARNING

A fully configured 2.0 meter cabinet can weigb up to 362.8 kg (800 lbs). Always use at least two people to roll tbe cabinet off of the pallet. Failure to beed tbis warning can result in serious injury or equipment destruction.

Step 5. Use at least two people to roll the cabinet off of the pallet and down the ramp (callout 7).



Cabinet Inspection

Once the cabinet is off the shipping pallet, but before moving it to the installation site, inspect the internal and external condition of the cabinet.

Cabinet Exterior Cbecklist:

Check the cabinet exterior for signs of shipping damage:

- Look at the top and sides for dents, warpage, or scratches.
- Check the front bezels for alignment, scratches, and that they open and close normally.
- Check any filler panels on the front of the cabinet, for proper fit.
- Check the forehead assembly for any signs of damage.

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- Check the rear door for dents, scratches, proper fit when its closed, and operation.

Cabinet Interior Checklist: Open the rear door and inspect the inside of the cabinet:

- Inspect all cables, make sure they are secure.
- Inspect all rails for signs of damage.
- Check all mounting screws for tightness.
- Check all components for signs of shifting during shipment or any signs of damage.

NOTE If the shipment is incomplete, or if the equipment is damaged or fails to meet specifications, notify the nearest Hewlett-Packard Sales and Support Office. If damage occurred in transit, notify the carrier as well. Hewlett-Packard will arrange for replacement or repair without waiting for settlement of claims against the carrier. If the shipment was damaged in transit, keep the shipping containers and packaging material for inspection.

If extensive damage is found, it may be necessary to return the entire cabinet to HP. Refer to the Repacking instructions.

Cabinet Installation

Installation of a factory-loaded cabinet consists of the following steps:

Step 1. Move the cabinet to installation site.

Step 2. Lower the leveling feet. (This will prevent excessive wear on the casters.)

CAUTION Extend the cabinet stabilizers, located at the bottom of the front of the cabinet, as an additional safeguard against overturning the cabinet during installation. Failure to observe this precaution could result in personal injury or equipment damage.

Step 3. Connect the console and system peripherals to the server.

For information about connecting external devices, refer to External Connections at the end of this section.

NOTE Attaching cables while the rails are extended fully forward will ensure that sufficient slack is available for later maintenance.

Step 4. Connect the cabinet power cord to the appropriate wall outlet.

NOTE If the cabinet being installed contains a PowerTrust Uninterruptible Power Supply (UPS), perform the steps shown under the PowerTrust UPS OptionOption subsection.

Step 5. Be sure all peripherals outside the cabinet are connected to wall outlets.

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The cabinet/server system assembly is now ready for the power up process. Refer to the section titled, A-Class Server Power Up and Boot Procedures.

PowerTrust UPS Option

Unpack the PowerTrust UPS and read all the installation information in the *PowerTrust System Guide,* part number 5961-8383. Once all the procedures listed in the UPS guide are complete, perform the following steps to complete the UPS installation with the cabinet.

1. Position the UPS next to the cabinet on the floor.
2. Remove the jumper cord from the SPU to the PDU inside the cabinet.
3. Install one of the convenience cords (output cord) that came with the UPS into the AC receptacle in the back of the SPU.
4. Place the other end of that cord into one of the *Output* outlets in the back of the UPS.
5. The other convenience cord is connected between the UPS and the system console.
6. Locate the appropriate input line cord for the UPS in the supplemental package shipped with the UPS.
7. Plug the UPS into the appropriate wall outlet.
8. The system should now be ready for power up. Refer to the section titled, A-Class Server Power Up and Boot Procedures.

Repackaging tbe Cabinet for Sbipment

Use the original packing material to repackage the cabinet for shipment. If the packing material is not available, contact your local Hewlett-Packard Sales and Support Office regarding shipment.

Before shipment, place a tag on the container (or equipment) to identify the owner and the service to be performed. Include the equipment model number and the full serial number, if applicable. The label showing the model number and the full serial number is located on the outside of the rear door.

Due to the weight of a fully loaded cabinet, it will require two people to push the cabinet up the ramp onto the pallet.

WARNING

Repackaging a loaded cabinet may be bazardous because a fully configured 2.0 meter cabinet can weigb up to 362.8 kg (800 lbs). Always use two people wben moving the cabinet and when positioning tbe cabinet on the pallet. Check tbe condition of tbe loading/unloading ramp before use. If tbe ramp appears damaged, DO NOT attempt to pusb a loaded cabinet up tbe ramp onto tbe

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pallet. Contact your local Hewlett-Packard Sales and Support Office regarding shipment. Failure to heed this warning can result in serious injury or equipment destruction.

To repackage the cabinet, follow the repacking checklist and refer to the unpacking instructions for detail.

Repacking Checklist:

- Assemble the HP packing materials that came with the cabinet.
- Connect the loading ramp to the pallet.
- Raise the cabinet levelers before moving the cabinet.
- Push the cabinet up the ramp onto the pallet. Be sure to position the cabinet so that the front goes up the ramp first.
- Secure the cabinet to the pallet with the shipping clamps, shipping block, and rear door support.
- Place the anti-static bag over the cabinet.
- Place bezel support packing on the front corners of the cabinet. Secure it with a wrap.
- Place the top cap packing material and loading/unloading ramp on top of the cabinet.
- Wrap the clam shell box around the cabinet.
- Put the box top on the box and secure the assembly to the pallet.

Be sure to follow the tagging and labeling instructions mentioned earlier. The cabinet is now ready for shipment.

Installing a Stand-alone System in an HP-supported Cabinet

Cabinet Identification

The following cabinets can hold multiple A-Class servers:

Cabinet Product Number	Assembled by:	Size (Height x Width)	Maximum Servers	Adapter Kit Number
A4900A	Factory	1.25m x 19”	12	A5180A
A4901A	Factory	1.6m x 19”	16	A5180A
A4902A	Factory	2.0m x 19”	20	A5180A
J1502A	Field	1.25m x 19”	12	A5214A
J1501A	Field	1.6m x 19”	16	A5214A
J1500A	Field	2.0m x 19”	20	A5214A
C2785A	Field	1.1m x 19”	10	A5214A
C2786A	Field	1.6m x 19”	16	A5214A

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Cabinet Product Number	Assembled by:	Size (Height x Width)	Maximum Servers	Adapter Kit Number
C2787A	Field	2.0m x 19"	20	A5214A

Cabinet Loading Requirements

A-Class servers require two EIA of cabinet space (each two EIA of space is equivalent to the height of a server without the server's "feet"). Ensure that the cabinet has this amount of space available.

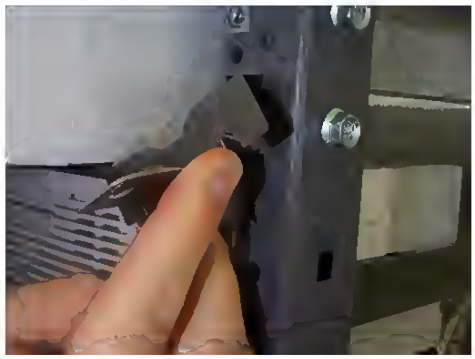
NOTE Replace the rubberized feet on the server with plugs provided in the cabinet mounting adapter kit.

Fill empty cabinets from the top down, with A-Class servers on top. If you are mounting one or more servers into an empty cabinet, start at the inside top of the cabinet and count down four of the holes in the columns at each corner to determine the position of the rails for the first server. When the first rails are installed, continue to use the four hole requirement as your guide for installing additional A-Class servers.

Refer to the *Rail Kit Installation Sheet* (A5214-96001) for instructions necessary to install rails in the HP computer cabinet.

Mounting the Server To mount the server in the cabinet, follow the procedure listed below:

Step 1. From the front of the cabinet, slide the server onto the rails. Push the server into the cabinet until approximately three inches of the server remains protruding from the front.



Step 2. Install sheet metal nuts on the left and right front columns and align with front anchor bracket slots.

Step 3. Install the left and right front anchor brackets on each side of the server as follows:

- Insert each hooked tab into its slot on the bottom of the front corner of the server.

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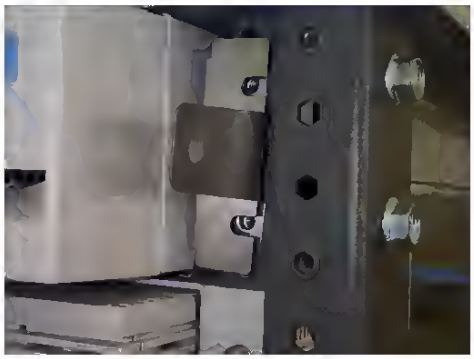
- Hold the tabs upright and slide the server all the way into cabinet until the tabs butt up against the columns on each side.



Step 4. Fasten the both front anchor brackets securely to both front cabinet columns with the prepositioned sheet metal nuts.

Step 5. Attach a plastic end cap to each anchor bracket.

Step 6. At the rear of the cabinet, position the rear rail mounting clamps on each rail at the back of the server. Tilt each clamp forward slightly and slide the angled tab completely into the available slot in the server so that each clamp sits flat on the rail.

Step 7. Fasten each rear mounting clamp to its rail with the screws provided.

When you are ready to connect external devices, refer to External Connections for further information.

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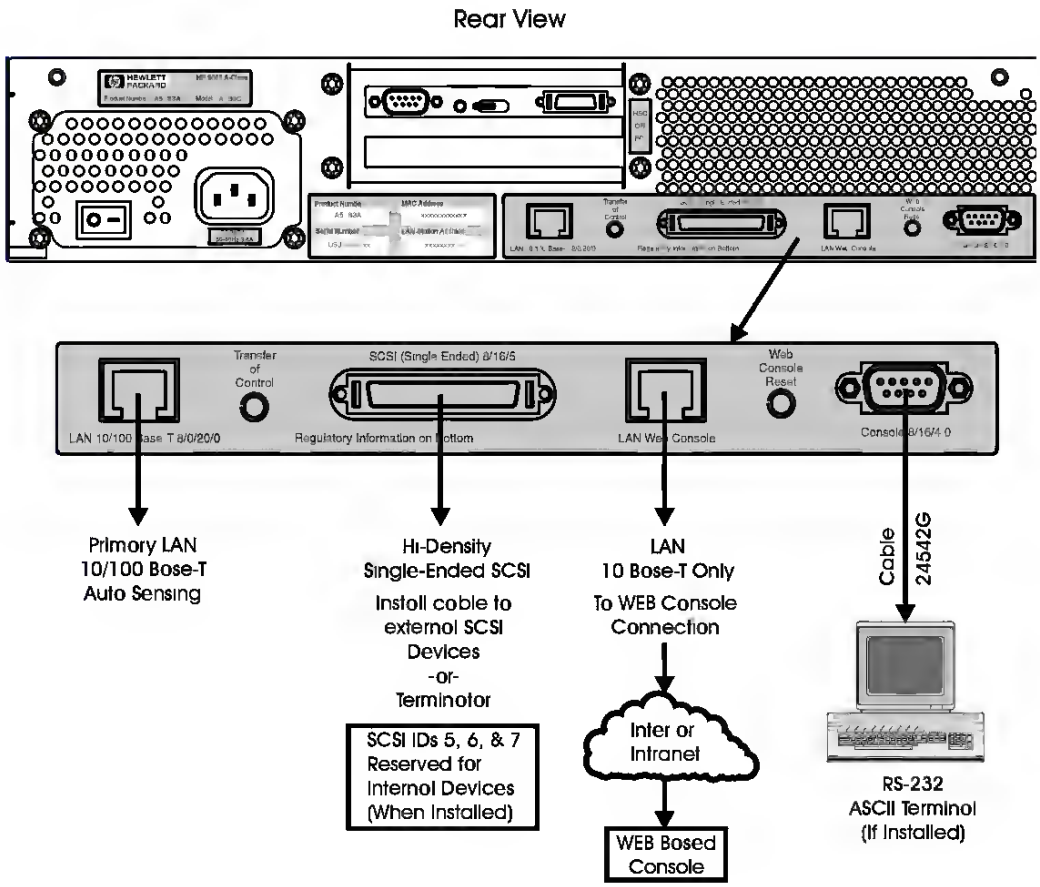
External Connections

External devices are interfaced with the A-Class server by means of specific connectors located in the rear of the server. Exterior connections to the server include ports for:

- Small Computer System Interface (SCSI) devices
- System Consoles
- Local Area Networks (LANs)
- Power Cords.



Connect External Small Computer System Interface (SCSI) Devices

Connect external SCSI devices to the Single Ended SCSI bus (labeled *SCSI (Single-Ended) 8/16/5)* on the system card or to additional SCSI interface cards. If external devices will not be connected to the SCSI bus, make sure the terminator (1252-3932) is in place.

Make sure all devices on the SCSI bus have a unique address and the last device is terminated. Refer to the documentation accompanying each device to learn how to set addresses and where to place terminators.

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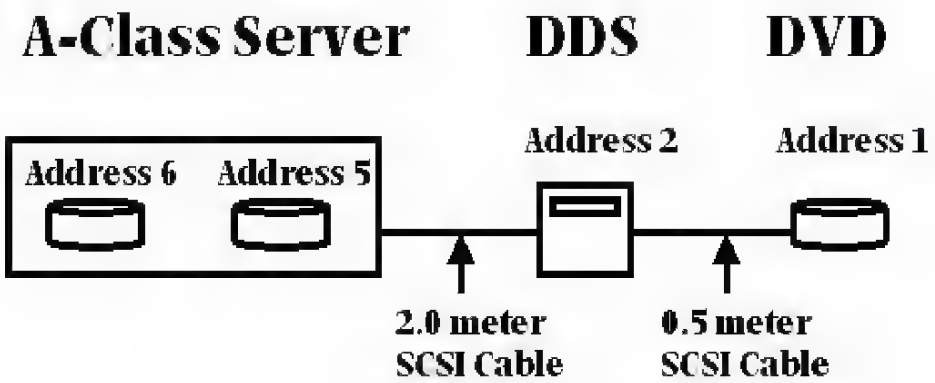
Connect external DDS (Digital Data Storage) tape and DVD/ CDROM drives to A-Class servers as shown in the diagram below. Connecting these devices in this manner reduces the likelihood of excessive parity errors and unexpected interrupts from occurring on the SCSI bus.



Connect a System Console

- Using the ASCII Terminal as a System Console. If an ASCII terminal is to be used as a system console, connect it to the back of the server with a 24542G cable by attaching it to the 9- pin male connector labeled, *Console 8/16/4.0.*

  Make sure the keyboard is connected and a power cable is available.

NOTE When the web console is used, the *RS232 Console Port (8/16/4.0)* is disabled

- Using the Web Console as a System Console. If the Web Console is to be used as a system console, connect an RJ45 LAN cable to the RJ45 connector labeled, *LAN Web Console,* on the back of the server.

NOTE The Web Console has a default Internet Protocol (IP) address of 192.0.0.192. Make sure that no other device, including other A-Class servers, has this address before connecting the A-Class server to your LAN.

Connect the Core Local Area Network (LAN)

Connect the 100baseT Core LAN on the system board to your LAN by using an RJ45 LAN cable. Connect the RJ45 LAN cable to the server by attaching it to the RJ45 connector labeled, *10/100 Base-T 8/0/20/0.*

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Connect Power Cords

CAUTION Do not press and hold the Web Console Reset button (located on the rear of the server between the LAN Web Console receptacle and the ASCII terminal receptacle) while connecting the server power cord. Failure to observe this precaution will cause erasure of all settings in the Web Console that is connected to the server.

Connect the power cord that is provided with the system to the server. For stand-alone servers, the power cord will be localized to each country's power application. If an HP Uninterruptible Power Supply (UPS) is the power source, use the power cord provided with the UPS. If an HSC Remote Management card is installed in the server, use the cable provided with the HP UPS to connect the RS232 serial port to the port labeled "UPS" on the HSC Remote Management card.

Connect power cords to all external devices at this time with the localized power cord, cabinet power cord, or the UPS power cord.

For cabinet mounted servers, the server power cord connects to the C13 connector of the Power Distribution Unit in the cabinet.

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Installing Internal Add-On Components

This section explains how to install internal add-on components into A-Class servers. Internal add-on components include memory, cache memory, embedded disks and I/O cards. For cabinet mounted servers, it is necessary to remove the server from the cabinet to install internal add-on components.

Refer to the appropriate section for internal add-on component installation information:

- Installing Memory (RAM) Modules.
- Installing Cache Memory SIMMs.
- Installing Embedded Disk Drives.
- Installing Input/Output (I/O) Cards.

Installing Memory (RAM) Modules.

This section describes how to install memory (RAM) into A-Class servers. Computer memory is commonly referred to as Random Access Memory (RAM). The terms RAM and memory are used interchangeably in this documentation. Abbreviated Memory SIMM installation instructions also appear on the 11" x 14" maintenance label adhered to the bottom of the top cover.

A-Class memory is sold as a module. A module is defined as two SIMMs. A-Class servers support three memory module sizes: 128MB, 256MB and 512MB. The 128MB memory module consists of two 64MB SIMMS. The 256MB memory module consists of two 128MB SIMMs and the 512MB memory module consists of two 256MB SIMMs. A memory module occupies two slots. The size (or capacity) of a memory SIMM is printed along the top edge of the SIMM.

NOTE SIMM is an acronym for Single Inline Memory Module. A SIMM has components on one side of the card, only.DIMM is an acronym for Dual Inline Memory Module. A DIMM has components on both sides of the card.The acronym SIMM will be used throughout this section to refer to either SIMM or DIMM.

A-Class servers provide 8 slots for memory. These slots are labeled in pairs and are numbered 0a, 0b, 1a, 1b, 2a, 2b, 3a and 3b. The nomenclature for a pair of SIMM slots is 0a/b, 1a/b, 2a/b and 3a/b. The following rules govern the installation memory in A-Class Servers.

- Memory must be installed in SIMM pairs.
- The capacity of SIMMs must be the same.
- Install SIMMs with the greatest capacity in the lowest slot numbers.

Follow the steps below to install memory in A-Class servers.

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Electrostatic Discharge Precautions.

The procedures in this section require opening the server and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the server. Failure to follow these precautions may result in component damage or loss of system reliability.

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

- Power down the system.
- Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

- Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

Step 1. Document which size SIMMs are already installed and in which slots.

Step 2. Determine the size of the memory SIMMs to be installed.

Step 3. If the capacity of the memory SIMMs to be installed is less than or equal to existing memory, install the new SIMMs in the next available slots.

Step 4. If the capacity of the memory SIMMs to be installed is greater than existing memory, remove all existing memory RAM Removal, install RAM Replacement, the largest capacity SIMMs first beginning with slot 0a/b. Continue to add SIMMs in this manner.

Step 5. Proceed to A-Class Server Power Up and Boot Procedures.

Installing Cache Memory SIMMs.

This section describes how to install Cache Memory SIMMs into A-Class servers. Abbreviated Cache Memory SIMM installation instructions also appear on the 11" x 14" maintenance label adhered to the bottom of the top cover.

A-Class Cache Memory is sold as a module. A module is defined as two SIMMs. A-Class servers support a single 1MB Cache Memory module. The 1MB Cache Memory module consists of two 512MB SIMMs. A Cache Memory module occupies two slots. The size (or capacity) of the Cache Memory SIMM is printed along the top edge of the SIMM.

NOTE SIMM is an acronym for Single Inline Memory Module. A SIMM has components on one side of the card, only.DIMM is an acronym for Dual Inline Memory Module. A DIMM has components on both sides of the card.The acronym SIMM will be used throughout this section to refer to either SIMM or DIMM.

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A-Class servers provide 2 slots for Cache Memory. The following rules govern the installation memory in A-Class Servers.

- Cache Memory must be installed in SIMM pairs.
- The capacity of SIMMs must be the same.

Follow the steps below to install Cache Memory in A-Class servers.

Electrostatic Discharge Precautions.

The procedures in this section require opening the server and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the server. Failure to follow these precautions may result in component damage or loss of system reliability.

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

- Power down the system.
- Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

- Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

Step 1. Install the first 512MB Cache Memory SIMM in either unoccupied slot.

Step 2. Install the second 512MB Cache Memory SIMM in the remaining unoccupied slot.

Step 3. Proceed to A-Class Server Power Up and Boot Procedures.

Installing Embedded Disk Drives.

This section describes how to install embedded disk drives into A-Class servers. Abbreviated embedded disk drive installation instructions also appear on the 11" x 14" maintenance label adhered to the bottom of the top cover.

A-Class servers support up to two embedded disk drives. As of April 2000, disk capacities of 4GB, 9GB and 18GB are supported.

Follow the steps below to install embedded disk drives in A-Class servers.

Electrostatic Discharge Precautions.

The procedures in this section require opening the server and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the server. Failure to follow these precautions may result in component damage or loss of system reliability.

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- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

- Power down the system.
- Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

- Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

Step 1. Remove the disk carrier by removing the slotted T15 TORX screw and slide the disk carrier upward and toward the power supply.

Step 2. If an embedded disk is already installed, disconnect the power and data cables from that disk. Place the disk carrier on a ESD safe mat.

Step 3. Set address and configuration jumpers on the disk to be installed. The lower disk is usually the boot disk and the recommended address is 6. The upper disk is recommended to be address 5. DO NOT use address 7 as this address is reserved for the SCSI controller internal to the server. The SCSI controller address of 7 can not be modified.

Step 4. Check configuration jumpers existing disks. Make sure the TERMINATION ENABLED jumper is removed.

NOTE The TERMINATION ENABLED jumper must be REMOVED on all embedded disk drives. Failure to remove this jumper will prevent the SCSI bus from operating properly. Symptoms include failing to boot from the embedded disk drives when external devices are connected to the "SCSI (Single Ended) 8/16/5 path".

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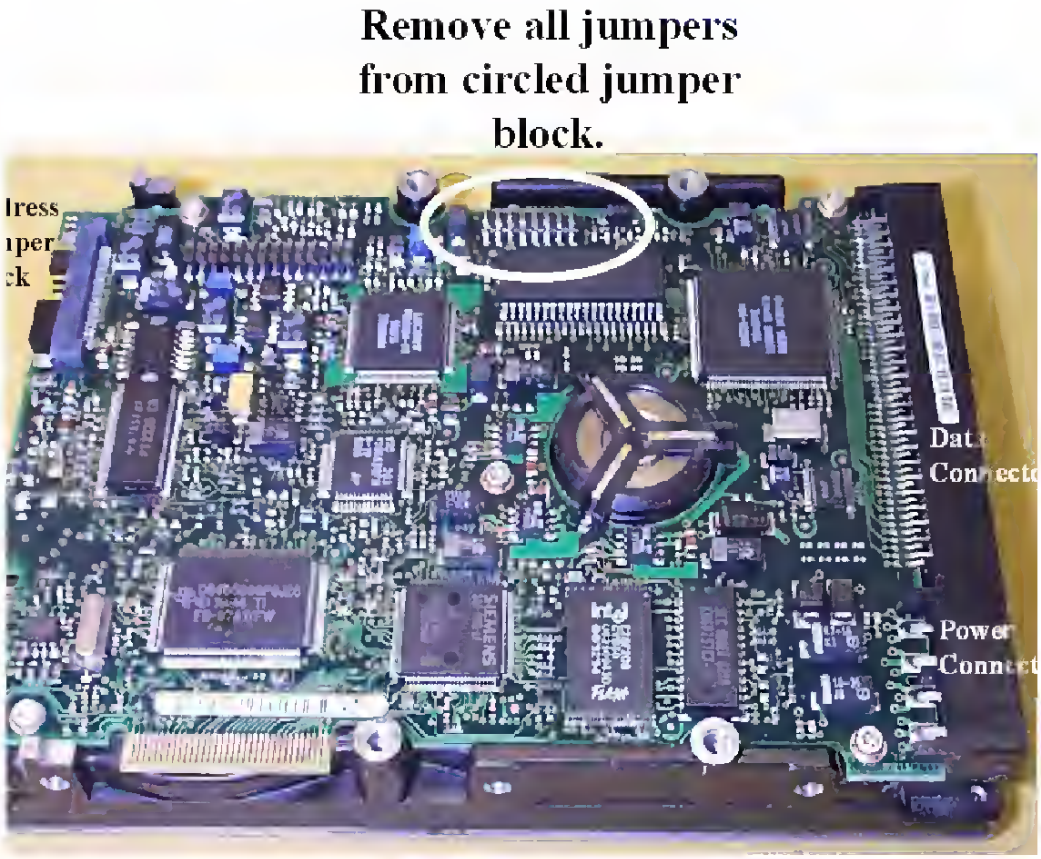

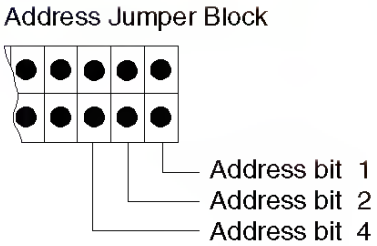

Set the upper drive to ID to 5

Set the lower drive to ID to 6

Step 5. Install the first embedded disk drive in the lower slot and the second embedded disk in the upper slot of the disk carrier. Orient the disk drive and the carrier such that the power and data connectors on the disk drive are on the same side as the sheetmetal tabs. Slide the disk drive into the carrier and secure the disk drive to the disk carrier with the four slotted T15 TORX screws that came with the disk drive.

Step 6. Attach power and data cables to the embedded disk drives.

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Step 7. Install the disk carrier by inserting the two sheetmetal tabs on the disk carrier into the cut-outs in the server chassis. Secure the disk carrier using the slotted T15 TORX screw removed in step 1.

Step 8. Proceed to A-Class Server Power Up and Boot Procedures.

Installing Input/Output (I/O) Cards.

This section describes how to install I/O cards into A-Class servers. Abbreviated embedded PCI I/O card installation instructions also appear on the 11" x 14" maintenance label adhered to the bottom of the top cover.

A-Class servers provide two slots for I/O cards. The cards which plug into these slots can be Peripheral Component Interconnect (PCI), High Speed Connect (HSC) I/O cards or both (see photo).

The following rules govern the installation of I/O cards:

- When present, the A3342A HSC Remote Management I/O card must be installed in the bottom slot.
- For one HSC and one PCI card configurations, the HSC card must be installed in the bottom slot.
- For two HSC or two PCI cards, the load order does not matter.

NOTE When the A3342A HSC Remote Management card is installed, the console path changes from 8/16/4 to 8/4/0. This may prevent HP-UX from booting.

During selftest, server firmware detects the presence or absence of the A3342A HSC Remote Management card and will automatically direct server firmware output to the appropriate path (8/4/0.0 when the A3342A is present, 8/16/4.0 when the A3342A is absent). These path changes are transparent to the physical console which should be connected to the server via the connector labeled "Console 8/16/4.0". These path changes are also transparent to the server firmware 'CONSOLE PATH' value. Server firmware will not change the 'CONSOLE PATH' value. It is not necessary to manually change the 'CONSOLE PATH' value when installing or removing the A3342A. You may do so if you chose.

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Example: A3342A is not installed. 'CONSOLE PATH' value is 8/16/4. Server firmware directs output to 8/16/4.0. Install A3342A. The 'CONSOLE PATH' value is still 8/16/4 but server firmware directs output to 8/4/0.0. Where the console is connected never changes.

NOTE When the A3342A HSC Remote Management card is installed, do not move the console cable from the server connector labeled "Console 8/16/4.0" to the 9-pin connector on the A3342A HSC Remote Management card. This connector is for UPS use only.

While server firmware can automatically respond to presence or absence of the A3342A HSC Remote Management card, HP-UX can not. If HP-UX was installed without a A3342A HSC Remote Management card installed, the HP-UX path for the console will be 8/16/4.0. If an A3342A HSC Remote Management card is installed, the path changes to 8/4/0.0. The driver for this path is mux2. If mux2 is not configured to be 'in', HP-UX will no longer communicate with the console. The symptom is that the server boots from the root disk, displays the following message then hangs;

```
Trying Primary Boot Path
------------------------


Booting
Boot IO Dependent Code (IODC) revision 144


HARD Booted.


ISL Revision A.00.38  OCT26, 1994


ISL booting hpux


Boot
:disk (8/16/5.6.0.0.0.0.0;0)/stand/vmunix
3605260 + 327680 + 408736 start 0x16b2e8
```

To correct this condition, remove the A3342A Remote Management card, boot HP-UX, run SAM and configure the mux2 driver to be 'in'. If necessary, refer to the web-based information at http://docs.hp.com for instructions on how to perform this task. The A3342A Remote Management card can be installed after the mux2 driver has been verified to be 'in'.

Follow the steps below to install I/O cards in A-Class servers.

Electrostatic Discharge Precautions.

The procedures in this section require opening the server and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the server. Failure to follow these precautions may result in component damage or loss of system reliability.

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- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

- Power down the system.
- Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

- Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

Step 1. If necessary, remove I/O card brackets. Refer to A-Class Server I/O Card Removal and Replacement.

Step 2. Carefully insert the I/O card into the backplane connector. The tab on the bulkhead will slide into its slot in the chassis.

Step 3. Attach the card support guide to the front edge of the I/O card, hook the tab into its slot, and secure the support guide with the mounting screw.

Step 4. Slide the bulkhead slotted tab up into position between the captive screw and chassis, and tighten the captive screw.

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A-Class Server Power Up and Boot Procedures

Overview

This Section discusses the following power up and boot procedures:

- Power Up All External Devices
- Power Up the Server
- Configuring the integrated A-Class Web Console. This procedure includes:
  - — Configuring The Web Browser Host
  - — Configure the Web Browser
  - — Configure The integrated A-Class Web Console Software
  - — Accessing the Secure Web Console

Optional procedures for identifying external devices and mapping diagnostics:

- Boot to Initial System Loader (ISL) (Optional)
- Run Online Diagnostic Environment (ODE) Mapper (Optional)

The command to Boot HP-UX after running either of the preceding options is also included.

Power Up Procedures

Power Up All External Devices

Apply power to all external devices, such as additional disk drives, Universal Power Supply, and Digital Data Storage. Observe that each device passes its own selftest and is ready for operation. Refer to the device-specific documentation as necessary.

Power Up the Server

Apply power to the A-Class server by toggling the rocker power switch on the rear of the server from the 0 position to the 1 position. All of the front panel LEDs will illuminate for a moment, then turn off. Only the green power LED will remain illuminated until power is switched off. If the LEDs do not illuminate or the server does not appear to power on, refer to Chapter 3, "A-Class System Service," on page 61.

The server will automatically conduct a selftest and, upon completion, the firmware Main Menu screen will be displayed at the system console. Only the power LED should be illuminated at this point.

If AUTOBOOT is enabled, the system will automatically try to boot HP-UX from the PRIMARY PATH. If you want to interrupt the boot process, press any key on the keyboard within 10 seconds after the message, `Hit any key to interrupt the boot sequence` is displayed.

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Configuring the integrated A-Class Web Console

CAUTION The integrated A-Class Web Console is preconfigured with IP address 192.0.0.192. Power-off any other devices with the same IP address before proceeding with integrated A-Class Web Console configuration. Each A-Class server must be configured to the integrated A-Class Web Console with an individual IP address.

Failure to follow this precaution will result in unexpected behavior of the Local Area Network (LAN).

Configuring The Web Browser Host

NOTE The A-Class server and the Web Browser Host must be on the same subnet.

Enter the following commands into either a DOS window or UNIX widow on the host where the browser used to configure the integrated A-Class Web Console resides:

Step 1. Route add 192.0.0.192 <host IP address>.

Step 2. ping 192.0.0.192.

If ping is unsuccessful, proceed to step 3.

If ping is successful, proceed to *Configure the Web Browser.*

Step 3. arp -s 192.0.0.192 <MAC_ address of integrated A-Class Web Console>.

Step 4. Repeat Step 2.

NOTE Using the arp command requires superuser capability.

The MAC address of the integrated A-Class Web Console appears on the rear label of the server in a field entitled, "MAC Address." The MAC address must be entered in the correct format. For example:

PCs: 00-60-b0-22-3e-ae Unix workstations: 00:60:b0:22:3e:ae

CAUTION DO NOT enter the "LAN Station Address" value (located on the rear label) in place of the "MAC Address" value (also located on the rear label). If the wrong number is erroneously entered, use the arp -d command to correct the entry.

Failure to follow this precaution will cause the integrated A-Class Web Console to malfunction.

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Configure the Web Browser

Enable Java™ on your Web browser (Internet Explorer™ version 3.02 or Netscape Navigator™, version 3.01 or later).

Temporarily add 192.0.0.192 to the list of URLs in your browser proxy configuration (under options).

Configure The integrated A-Class Web Console Software

NOTE During the configuration of your Secure web console, you must construct an IP gateway in the "configure IP" screen. If you do not have a valid IP gateway, enter the same IP address as you entered for the Secure integrated A-Class Web Console.

Access the integrated A-Class Web Console through your Web browser, located on the same subnet, by typing the following URL in the "Location:" window: http://192.0.0.192. The screen shown below will be displayed:

Netscape - [HP Secure Web Console initialization]
File Edit View Go Bookmarks Options Directory Window Help
Back Forward Home Reload Images Open Print Find Stop
Location: http://192.0.0.192/
HP SECURE WEB CONSOLE
HEWLETT PACKARD
Your physical installation was successful
You will now be guided through the configuration of the HP Secure
Ok
Cancel
Help

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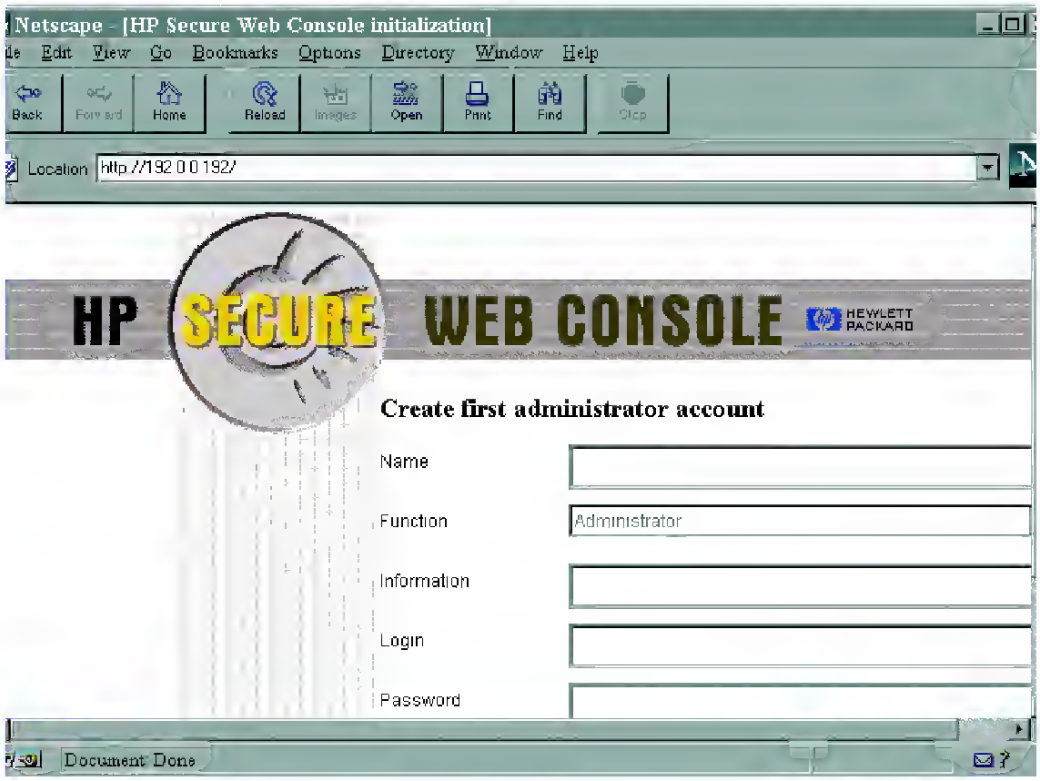
Press OK to continue. The following administrator account creation screen will appear:



The data required for this screen is defined below:

Name is the full name of the Secure Web Console Administrator.

Function is the job title of the Secure Web Console Administrator.

Information can be used for additional data about the Secure Web Console Administrator. For example: phone number, location, etc.

Login is the user name of the Secure Web Console Administrator.

Password must be at least six characters in length and must be entered in both fields.

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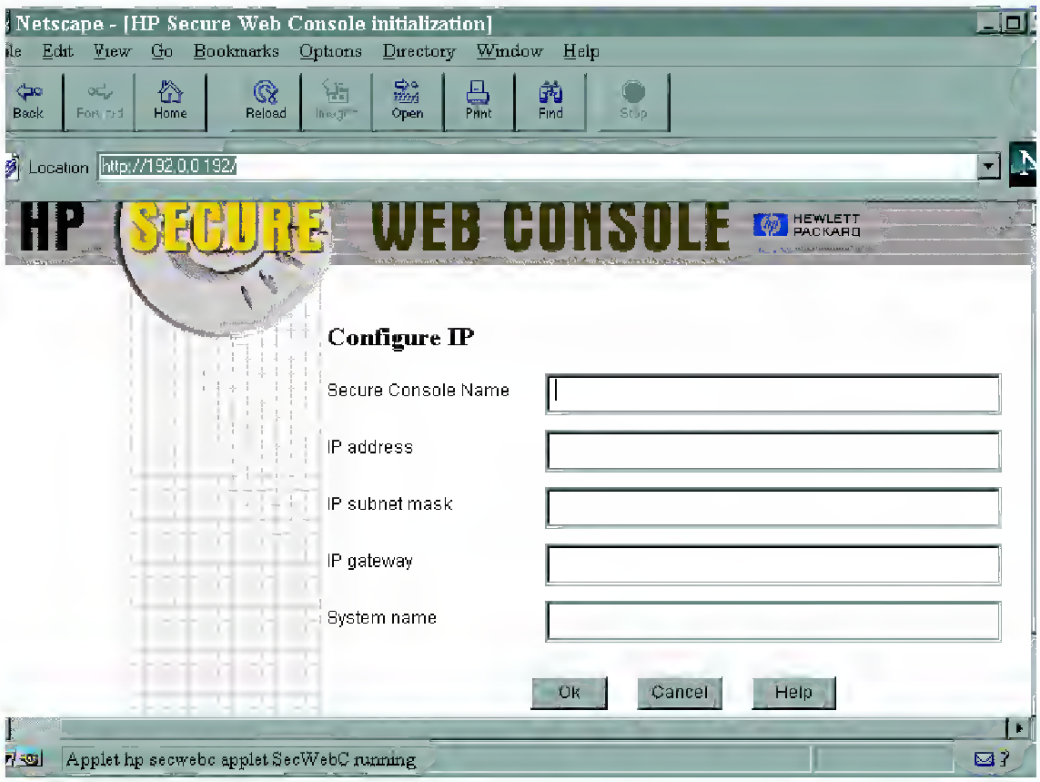
When all fields have been completed, the following "Configure IP" screen will appear:



The data required for this screen is defined below:

- *Secure Console Name* (the name given to the integrated A-Class Web Console)
- *IP address* (the IP for the integrated A-Class Web Console port)
- *IP subnet mask* (the IP for the subnet mask for your site)
- *IP gateway* (the IP gateway address)
- *System name* (the name given to the A-Class Server).

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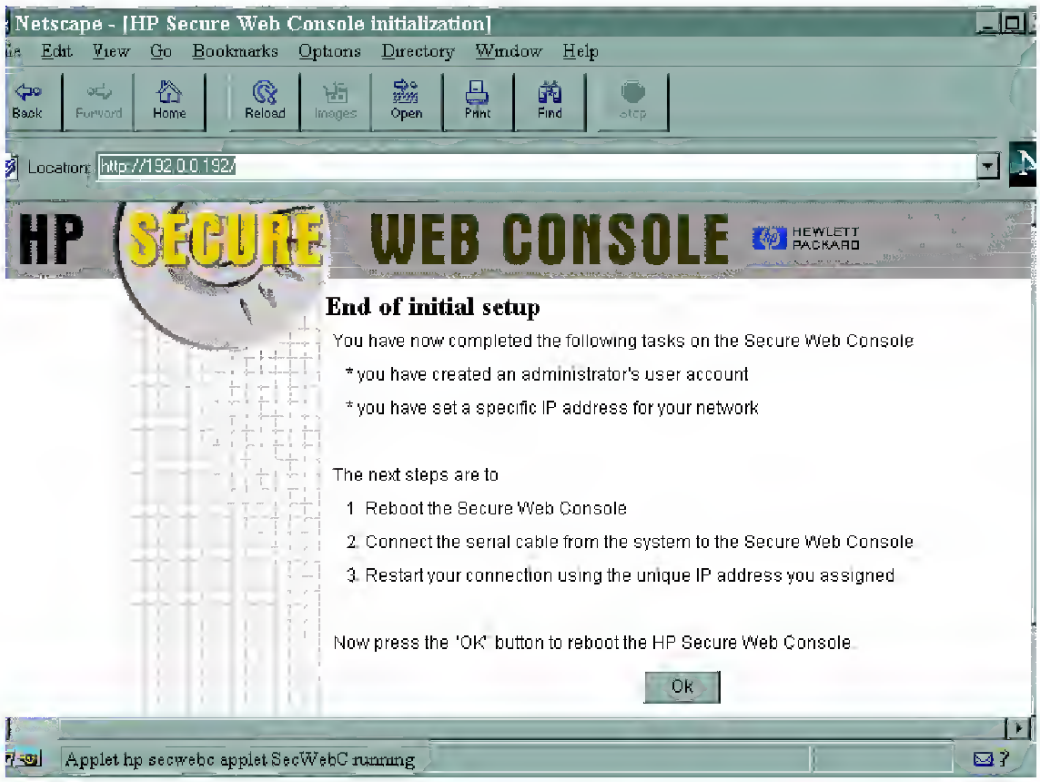
After entering this information, press OK. The final screen in this series will appear:


Netscape - [HP Secure Web Console initialization]
File Edit View Go Bookmarks Options Directory Window Help
Back Forward Home Reload Images Open Print Find Stop
Location: http://192.0.0.192/
HP SECURE WEB CONSOLE
HEWLETT PACKARD
End of initial setup
You have now completed the following tasks on the Secure Web Console
* you have created an administrator's user account
* you have set a specific IP address for your network
The next steps are to
1. Reboot the Secure Web Console
2. Connect the serial cable from the system to the Secure Web Console
3. Restart your connection using the unique IP address you assigned
Now press the 'OK' button to reboot the HP Secure Web Console.
Ok
Applet hp secwebc applet SecWebC running

NOTE Disregard step 2, "Connect the serial cable from the system to the Secure Web Console." Step 2 applies only to the stand-alone version of the HP Secure Web Console product. In A-class servers, this product is already installed internally.

Press OK to continue.

NOTE Pressing OK will NOT reboot the A-Class server. It will only reboot the Secure Web Console. A-Class server boot procedures are included in the following section.

Accessing the Secure Web Console

Enter the IP address of the Web Console (the IP address is the address for the Web Console port) in the web browser "Location:" window. Enter the user name and password, when prompted. From the HP Secure Web main screen, click on *Access Console*.

For additional information regarding the HP Secure Web Console, enter the following URL: http://eproducts.hp.com/.

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Configuring the Web Console

To configure the Web console for other A-Class servers, repeat all of the steps in this section. Use `arp -a` to display arp entries and use `arp-d` to delete the previous entry for IP 192.0.0.192.

For example, to configure the Web Console for A-Class servers with MAC addresses of 0060b0a60ale and 001083a62a3e using a PC with an IP of 15.43.251.93, proceed as follows:

At the C:\> prompt, type: **`route add 192.0.0.192 15.43.251.93`** and press **Enter**.

Using the ping Command At the C:\> prompt, type: **`ping 192.0.0.192`** and press **Enter**.

The terminal will display:

```
Pinging 192.0.0.192 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
```

At the C:\> prompt, type: **`arp -s 192.0.0.192 00-60-b0-a6-0a-1e`**

At the C:\> prompt, type: **`ping 192.0.0.192`** and press **Enter**.

The terminal will display:

```
Pinging 192.0.0.192 with 32 bytes of data:

Reply from 192.0.0.192: bytes=32 time=10ms TTL=255
Reply from 192.0.0.192: bytes=32 time=10ms TTL=255
Reply from 192.0.0.192: bytes=32 time=10ms TTL=255
Reply from 192.0.0.192: bytes=32 time=10ms TTL=255
```

Return to Configure the Web Browser and Configure The integrated A-Class Web Console Software.

Using the arp -a Command At the C:\> prompt, type: **`arp -a`** and press **Enter**.

The terminal will display:

Internet Address	Physical Address	Type
15.43.248.1	00-00-0c-07-ac-0 0	dynami c
192.0.0.192	00-60-b0-a6-0a- 1e	static

At the C:\> prompt, type: **`arp -d 192.0.0.192`** and press **Enter**.

At the C:\> prompt, type: **`arp -s 192.0.0.192 00-10-83-a6-0a-1e`** and press **Enter**.

At the C:\> prompt, type: **`ping 192.0.0.192`** and press **Enter**.

The terminal will display:

```
Pinging 192.0.0.192 with 32 bytes of data:

Reply from 192.0.0.192: bytes=32 time=10ms TTL=255
```


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```
Reply from 192.0.0.192: bytes=32 time=10ms TTL=255
Reply from 192.0.0.192: bytes=32 time=10ms TTL=255
Reply from 192.0.0.192: bytes=32 time=10ms TTL=255
```

Return to Configure the Web Browser and Configure The integrated A-Class Web Console Software.

Operating System Software Installation

HP-UX may be installed from removable media (DDS or CDROM) or via a LAN (Ignite-UX). A-Class servers require a server firmware version of 39.32 or later to use Ignite-UX. A-Class server firmware is Customer installable and is available as a firmware patch from the Hewlett Packard Information Technology Resource Center (HPITRC) at http://us-support2.external.hp.com/. Refer to patch installation instructions to install this firmware patch on A-Class servers. Refer to the web-based documentation at http://docs.hp.com/ for information on how to configure and use Ignite-UX.

This is a temporary solution for rebuilding an A-Class system from removable media (diskette or CD) only. This procedure is required because the 10.20 Core Install media does not include the "btlan3" drivers that you will need for networking support. This solution is for the HP-UX 10.20 operating system with an Independent Peripheral Release (IPR) of October 198 (9810) only. It is not needed for HP-UX 11.0 IPR 9810.

Step 1. Install HP-UX 10.20 for HP 9000 series 800 servers from removable media:

- Load Core Install media into either CDROM or DDS.
- Change Alternate Path to match the path of the device containing the install media.
- Boot from alternate path

If you are using a DDS: The console will display:

```
Main Menu>
```

Type: `co` Press **Enter**.

The console will next display:

```
Configuration Menu>
```

Type: `pa alt 8/16/5.0` Press **Enter**. The console will next display:

```
Configuration Menu>
```

Type: `au bo on` Press **Enter**. The console will next display:

```
Configuration Menu>
```

Type: `bo alt` Press **Enter**.

The following query will then be displayed:

```
Interact with IPL (Y, N, or Cancel)?
```

Type: `no` Press **Enter**.

The console will then display a menu. Select:

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```
INSTALL HP-UX
```

Press **Enter**. The console will display another menu. Select:

```
STANDARD LVM CONFIGURATION
```

Press **Enter**. The console will display another menu. To the query:

```
INTERACT WITH SD-UX?
```

type: `no` Press **Enter**. The system will begin the software installation process.

Step 2. When installation is complete, the server will reboot and the console will display the following prompt:

```
Are you ready to link the system to a network?
Press Y or N then press return.
```

Type: `n` Press **Enter**.

When prompted by the console display, enter the time and system name. The server should now function as a stand-alone system, except for an error in the /etc/rc.log file stating that the program "swagentd" could not start. This is because the new kernel was not built with enough networking support to allow the SD-UX (swinstall) software to run since no valid network drivers (btlan3) were found on the 10.20 media. To rebuild the kernel to allow the swinstall software to run, follow the remainder of this procedure.

Step 3. Log in as a "root" user and edit the "/stand/system" file to add the line: `lan0`.

When the system prompt "#" displays, type the following command: `vi/stand/system` Press **Enter**.

Step 4. To rebuild the kernel, type the following command at the "#" prompt: `mk_kernel -o/stand/vmunix` Press **Enter**.

NOTE Disregard the /usr/ccs/bin/ld: (Warning) "Linker features were used..." This warning does not apply to this procedure.

To reboot the system, type the following command when the system prompt "#" displays: `reboot -r` Press **Enter.**

Step 5. To make the SD-UX install software work, type the following command when the system prompt "#" displays:
`mknot/dev/lan0 c 52 0x000000` Press **Enter**. The SD-UX software should now work properly.

Step 6. The following command string is for DDS installation of the XSW800HWECR1020 (version XR41) bundle from removable media. This procedure will install the "btlan3" driver and reboot the server, but it will not automatically add "btlan3" support to the kernel. Type the following command when the system prompt "#" displays:

`swinstall -x autoreboot=true -x match_target=true -s/dev/rmt/0m` Press **Enter**. The "btlan3" driver will be installed and the server will reboot.

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Step 7. To add "btlan3" driver support to the kernel, edit the /stand/system file and add the line: `btlan3`. To access the file, type the following command when the system prompt "#" displays: `vi /stand/system`. When the file opens, add the "btlan3" line.

Step 8. Now, rebuild the kernel and reboot the system. Type the following command when the system prompt "#" displays: `mk_kernel -o /stand/vmunix` Press **Enter**.

NOTE Disregard the /usr/ccs/bin/ld: (Warning) "Linker features were used..." This warning does not apply to this procedure.

Then, type the following command when the system prompt "#" displays: `reboot -r` Press **Enter**. The system should now boot with an error-free /etc/rc.log file.

Step 9. Finally, type the following command when the system prompt "#" displays: `/sbin/set_parms initial` Press **Enter**. Network configuration is now complete.

Boot Procedures

Boot to Initial System Loader (ISL) (Optional)

If you wish to verify that all external devices are identified by the server before booting HP-UX:

Step 1. Interrupt the boot process if AUTOBOOT is enabled.

Step 2. At the firmware Main Menu screen, type, `bo pri`.

Step 3. At the, `Interact with IPL?` prompt, type, `y`.

The `ISL>` prompt will be displayed.

Run Online Diagnostic Environment (ODE) Mapper (Optional)

Step 1. At the, `ISL>` prompt, type, `ODE`.

Step 2. At the, `ODE>` prompt, type, `run mapper`.

Compare the ODE Mapper output to the devices present. Address any discrepancies before continuing. To exit ODE, type `exit` at the, `ODE>` prompt. This will return you to the, `ISL>` prompt.

Boot HP-UX

- If the boot process was interrupted to run ODE Mapper, that process is resumed by typing, `hpux` at the, `ISL>` prompt.
- If the boot process was not interrupted, HP-UX will automatically boot.

For configuration of HP-UX, refer to http://eproducts.hp.com/.

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A-Class Server System Software Configuration

Overview

Instructions for configuring software for both the A-Class server and the A-Class Secure Web Console can be found at: http:/docs.hp.com/. For hardware configuration, refer to Chapter 3, "A-Class System Service," on page 61.

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3 A-Class System Service

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A-Class System Repair

Overview

The sections listed below describe the procedures you will use to identify fault conditions in your server, troubleshoot the system, exchange the server Field Replaceable Units (FRUs), and configure system hardware:

- "A-Class System Repair". Describes the LED patterns displayed during normal operation and when fault conditions occur.
- "A-Class Server Fault Condition Recognition". This section is divided into two levels: tasks that can be performed by customers and tasks that can only be performed by qualified HP Field Service representatives.
- "A-Class Server Trouble Shooting". Lists the subsections that contain procedures for "Ordering Repair Parts for the A-Class Server", and removing and replacing the FRUs listed below:
  - "A-Class Server RAM Removal and Replacement"
  - "A-Class Server Cache Memory Removal and Replacement"
  - "A-Class Server Disk Drive Removal and Replacement"
  - "A-Class Server I/O Card Removal and Replacement"
  - "Replacing an A-Class Server Exchange Base Unit (EBU)".

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A-Class Server Fault Condition Recognition

Overview

The existence of fault conditions are determined by reviewing Front Panel LED Status codes (shown below), or reviewing Review Console Messages.

The following subsections describe fault condition review procedures.

Review Front Panel Status LEDs

Front panel LEDs display either normal operation or fault status of the A-Class server. Fault conditions consist of selftest failures and High Priority Machine Check (HPMC) fault conditions. The following table describes what the front panel LED blink patterns indicate:

	LAN LED	Heartbeat LED	Indication
	Random Blink Pattern	Heartbeat Blink Pattern	Normal Operation (HP-UX running)
	Off	Off	2nd Level Cache SIMM fault
	On (Steady)	Off	Memory SIMM fault
	On (Steady	On (Steady)	I/O Subsystem or I/O Board fault
	Off	On (Steady)	System board fault, HPMC or Unknown fault
	Blinking	On (Steady)	I/O HPMC fault
	Blinking opposite of Heartbeat LED	Blinking opposite of LAN LED	Memory HPMC fault (When LAN is ON, Heartbeat is OFF. When Heartbeat is ON, LAN is OFF)
	Off	Blinking	2nd Level Cache HPMC fault

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Review Console Messages

Console messages are also used to display fault conditions on the system console if a System Panic or HPMC fault occurs. If the memory dump function is properly configured, a memory dump (core dump) will automatically print to a hard disk file or other designated data storage following a System Panic, HPMC fault, or Transfer Of Control (TOC). Refer to the A-Class Server Trouble Shooting section for more information regarding TOC. If an A3342A HSC Remote Management card (Access Port) is installed, additional system status information, including selftest status messages, can be displayed at the console and, during normal operation (with HP-UX running), system status information can also be displayed by entering a Control B command. HSC Remote Management card system status information appears on the console in the format below.Refer to the A-Class Server Trouble Shooting section for definitions of the data provided by the HSC Remote Management card.

```
RUN F01F REMOTE: disabled inactive multiple ACCESS FLT: 00

CM>
```


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A-Class Server Trouble Shooting

Overview

Troubleshooting an A-Class server is performed to the "Field Replaceable Unit" (FRU) level. Diagnostic testing can be performed on the A-Class server and most components can be removed and replaced by the customer or customer representative.

NOTE The information in this section is meant for users who have at least a minimum level of hardware troubleshooting experience. Some System Administrator-level knowledge of the HP-UX operating system is also required.

This section gives you the information needed to recognize repeatable hardware failures that prevent completion of the server selftest, or hardware failures that will not allow the HP-UX operating system to either initiate or complete the boot procedure.

Use the troubleshooting data and procedures in this section to isolate hardware failures within the A-Class server. Do not use this information to troubleshoot external peripheral device problems. Refer to the suspect peripheral's documentation for troubleshooting assistance.

Procedures for evaluating and describing messages, codes, and indicators are contained in the subsections listed below:

- A-Class Server Selftest Failures/Warnings
- Troubleshooting with Light-Emitting Diode (LED) Interpretation
  - Successful Power-on Selftest.
  - Second Level Cache Memory Module Fault.
  - Random Access Memory (RAM) Module Fault.
  - I/O Subsystem or I/O Board Fault
  - System Board Fault, High Priority Machine Check (HPMC), or Unknown Fault.
  - I/O HPMC Fault.
  - RAM HPMC Fault.
- Firmware Warning Messages
- Chassis Code Summary
- Troubleshooting the ASCII Console
- Troubleshooting the Secure Web Console
- Troubleshooting Embedded Disks

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A-Class Server Selftest Failures/Warnings

A power-on selftest is conducted each time power is applied to the server. Failures that occur at this point will either prevent selftest from completing or, upon initial completion of selftest, display warnings on the console.

NOTE Warnings will include a brief description of the fault.

If the selftest fails before any output appears on the console, the three front panel LEDs (Power, Heartbeat, and LAN connection, shown below) will blink in patterns to identify which section of selftest failed. To troubleshoot selftest failures using the front panel LEDs, proceed to the next section.

To troubleshoot selftest failures by chassis code analysis, refer to the Chassis Code Summary section.

Troubleshooting with Light-Emitting Diode (LED) Interpretation

The LED icons shown above are physically located on the right-hand side of the server, when you are facing the front. The icon on the far right is a green circle that, under normal conditions, emits a steady light when server power is on. The middle icon of the three is an amber heart shape that emits, under normal conditions, a "heartbeat" blinking light when the server is operating normally. The left-most icon is also amber and represents the Local Area Network (LAN) signal. Under normal conditions, the LAN icon blinks irregularly as dictated by LAN signal activity. Additional selftest information is provided in the sub-sections that follow.

Successful Power-on Selftest.

When power is applied to the server, the green POWER icon will light upon successful completion of the power supply selftest, which takes approximately 2 seconds. If the green POWER LED fails to light, check the power source. If the power source is valid, the problem is usually in the A-Class server power supply. Power supply failures are repaired by replacing the A-Class Exchange Base Unit (EBU). Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section. After the green POWER icon comes on, both the amber HEARTBEAT and amber LAN ACTIVITY icons will momentarily light and go out. When selftest is complete, the firmware Main Menu screen will display on the console, and the green POWER icon will emit a steady light. LED icon states will appear as shown below:

The following table shows how to interpret front panel LED blinking codes when selftest has failed and the firmware Main Menu screen is inaccessible. During the conditions shown in this table, the green POWER icon is ON.

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NOTE The LED pattern is only valid if the Firmware Main Menu is not displayed at the Console.

	LAN LED	Heartbeat LED	Indication
	Random Blink Pattern	Heartbeat Blink Pattern	Normal Operation (Under HP-UX)
	Off	Off	2nd Level Cache SIMM fault
	On (Steady)	Off	Memory SIMM fault
	On (Steady	On (Steady)	I/O Subsystem or I/O Board fault
	Off	On (Steady)	System board fault, HPMC or Unknown fault
	Blinking	On (Steady)	I/O HPMC fault
	Blinking opposite of Heartbeat LED	Blinking opposite of LAN LED	Memory HPMC fault (When LAN is ON, Heartbeat is OFF. When Heartbeat is ON, LAN is OFF)
	Off	Heartbeat Blink pattern	2nd Level Cache HPMC fault

Second Level Cache/RAM Memory Module Faults

Second Level Cache Memory Module Fault. This fault occurs when a Second Level Cache (SLC) failure prevents the system from completing selftest. Chassis codes provided by the HSC Remote Management card are useful in troubleshooting this type of error. For example, the fault FLT 2120 chassis code message indicates: “Second Level cache selftest” failure.

NOTE SIMM is an acronym for Single Inline Memory Module. A SIMM has components on one side of the card, only.DIMM is an acronym for Dual Inline Memory Module. A DIMM has components on both sides of the card.The acronym SIMM will be used throughout this section to refer to either SIMM or DIMM.

Electrostatic Discharge Precautions. The procedures in this section require opening the server and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working witb components inside or out of the server. Failure to follow these precautions may result in component damage or loss of system reliability.

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- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

- Power down the system.
- Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

- Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

General SLC SIMM Troubleshooting.

NOTE A-Class servers can only use Cache Memory SIMMs with part number A5182-60002. Using Cache Memory SIMMs with any other part number may result in the server failing it's selftest.

Step 1. Remove both SLC SIMMs and place on an ESD mat.

Step 2. Power up and observe LEDs

Step 3. If fault does not recur, the problem is with the SLC SIMMs. Either replace both SLC SIMMs, or proceed to the Single SLC SIMM Troubleshooting. subsection below.

Step 4. If the fault recurs, the problem is with the system board. To replace the system board, replace the A-Class Exchange Base Unit (EBU). Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section.

Single SLC SIMM Troubleshooting. To troubleshoot SLC faults to a single SIMM, a known-good SLC SIMM is required.

Step 1. Install the known-good SLC SIMM in slot A and install one of the original SLC SIMMs in slot B of the pair that failed. Power up and observe front panel LEDs.

Step 2. If the fault does not recur, the problem was caused by the SIMM that is not presently installed. Boot the system and resume normal operations. If the fault recurs, proceed to step 3.

Step 3. Replace the SLC SIMM in slot B with the other original SLC SIMM. Power up and observe front panel LEDs.

Step 4. If the fault does not recur, the problem is with the SLC SIMM previously installed in slot B. Boot the system and resume normal operations.

Step 5. If the fault recurs, the problem is with the system board. To change the system board, you must replace the A-Class Exchange Base Unit (EBU). Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section.

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Random Access Memory (RAM) Module Fault. This fault occurs when a RAM failure prevents the system from completing selftest. Chassis codes provided by the HSC Remote Management card are useful in troubleshooting this type of error. For example, FLT 7xxx indicates a failure in the memory selftest.

NOTE SIMM is an acronym for Single Inline Memory Module. A SIMM has components on one side of the card, only.DIMM is an acronym for Dual Inline Memory Module. A DIMM has components on both sides of the card.The acronym SIMM will be used throughout this section to refer to either SIMM or DIMM.

Electrostatic Discharge Precautions. The procedures in this section require opening the server and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the server. Failure to follow these precautions may result in component damage or loss of system reliability.

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

- Power down the system.
- Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

- Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

General RAM Module Troubleshooting.

Step 1. List which size SIMMs are installed in which slots.

Step 2. Remove all RAM SIMMs except for slot 0a and 0b (0a/b). Plug in and power up the server, and observe the front panel LEDs.

Step 3. If fault does not recur, the SIMMs installed in slot 0a and 0b are not the cause of the RAM SIMM fault. Power down the server, refer to the memory configuration list (step 1) and install the next pair of SIMMs. Power up the server and observe the front panel LEDs.

Step 4. Repeat step 3 until the RAM SIMM fault recurs. Note which pair of SIMMs caused the RAM SIMM failure. Either replace both memory SIMMs or continue to troubleshoot to a single SIMM.

For example: When RAM was reinstalled in slots 2a/b, the RAM SIMM fault returned. Therefore, the problem is with one of the two RAM SIMMs installed in slot 2a/b.

Single RAM Module Troubleshooting. To troubleshoot RAM faults to a single SIMM, a known-good RAM SIMM is required.

Step 1. Install the known-good RAM SIMM in slot A and install one of the original RAM SIMMs in slot B. Power up the server and observe the front panel LEDs.

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Step 2. If the fault does not recur, the problem was caused by the SIMM that is not presently installed. Boot the system and resume normal operations. If the fault recurs, proceed to step 3.

Step 3. Power down the server and replace the RAM SIMM in slot B with the other original RAM SIMM. Power up and observe front panel LEDs.

Step 4. If the fault does not recur, the problem is with the RAM SIMM that was previously installed in slot B. Boot the system and resume normal operations.

Step 5. If the fault recurs, the problem is with the system board. To change the system board, you must replace the A-Class Exchange Base Unit (EBU). Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section.

I/O Subsystem or I/O Board Fault

This fault occurs when either an HSC or PCI I/O board prevents the system from completing selftest. Chassis codes provided by the HSC Remote Management card are useful to troubleshoot this type of error. For example: FLT 8xxx indicates an I/O card failure.

To troubleshoot I/O Subsystem or I/O Board Faults using the front panel LEDs, follow the procedure listed below:

Electrostatic Discharge Precautions. The procedures in this section require opening the server and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the server. Failure to follow these precautions may result in component damage or loss of system reliability.

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

- Power down the system.
- Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

- Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

Step 1. Document the I/O configuration (write down which type of I/O board is installed in which of the I/O slots).

Step 2. Remove all I/O boards. Power up the server and observe the front panel LEDs.

Step 3. If the fault does not recur and only a single I/O board was removed, that I/O card is the cause of the I/O Subsystem or I/O Board Fault. Replace that I/O board, power on the server, and observe the front panel LEDs. If the problem recurs, proceed to step 8.

Step 4. If the fault does not recur and two I/O boards were removed, install the bottom I/O card, power up the server, and observe the front panel LEDs.

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Step 5. If the fault recurs, the I/O card in the bottom slot is the cause of the I/O Subsystem or I/O Board Fault. Replace that I/O board.

Step 6. If the fault does not recur, install the second I/O card, power up the server, and observe the front panel LEDs.

Step 7. If the problem recurs, replace the top I/O card.

Step 8. If replacing the I/O card does not clear the I/O Subsystem or I/O Board Fault, the problem is with the system board. To change the system board, you must replace the A-Class Exchange Base Unit (EBU). Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section.

System Board Fault, High Priority Machine Check (HPMC), or Unknown Fault.

This fault occurs when the system board has an irrecoverable fault or an HPMC prevents the system from completing selftest. Chassis codes provided by the HSC Remote Management card are useful for troubleshooting this type of error, because HPMCs generate many chassis codes and some chassis codes indicate a specific fault.

To troubleshoot I/O Subsystem or I/O Board Faults, power on the server and observe both the front panel LEDs and the console. If the server does not boot to the point where output displays on the console, the system board is the problem. To change the system board, you must replace the A-Class Exchange Base Unit (EBU). Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section.

If power cycling the server clears the fault, continue troubleshooting by entering the "ser pim" command at the firmware main menu screen. Check the timestamp on the PIM data to see if the time recorded corresponds to the time of the failure. For assistance with decoding an HPMC, contact Hewlett-Packard.

I/O HPMC Fault.

I/O Subsystem or I/O Board faults occur when an HPMC, in response to an I/O failure, prevents the system from completing selftest. Chassis codes provided by the HSC Remote Management card are useful in troubleshooting this type of error, because HPMCs generate many chassis codes and some chassis codes indicate a specific fault. To troubleshoot an I/O HPMC fault, refer to the I/O Subsystem or I/O Board Fault section.

If power cycling the server clears the fault, continue troubleshooting by using the "ser pim" command at the firmware main menu screen. Check the timestamp on the PIM data to see if the time recorded corresponds to the time of the failure. For assistance with decoding an HPMC, contact Hewlett-Packard.

RAM HPMC Fault.

RAM faults occur when an HPMC, in response to a RAM failure, prevents the system from completing selftest. Chassis codes provided by the HSC Remote Management card are useful in troubleshooting this type of error. To troubleshoot a RAM HPMC fault, refer to the Random Access Memory (RAM) Module Fault. section.

If power cycling the server clears the fault, continue troubleshooting by using the "ser pim" command at the firmware main menu screen. Check the timestamp on the PIM data to see if the time recorded corresponds to the time of the failure. For assistance with decoding an HPMC, contact Hewlett-Packard.

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Second Level Cache Memory HPMC Fault.

SLC faults occur when an HPMC, in response to a SLC failure, prevents the system from completing selftest. Chassis codes provided by the HSC Remote Management card are useful in troubleshooting this type of error.

If power cycling the server clears the fault, continue troubleshooting by using the "ser pim" command at the firmware main menu screen. Check the timestamp on the PIM data to see if the time recorded corresponds to the time of the failure. For assistance with decoding an HPMC, contact Hewlett-Packard.

Firmware Warning Messages

Firmware is the name given to the system boot instructions and selftest software that is imbedded into a computer chip instead of stored on disk. Firmware also includes warnings and error messages that are displayed on the console when selftest finds an error. Those warnings and messages, and a brief description or action requirement of each, is shown in the table included below:

Firmware Warning Messages	Description/Action Required
WARNING: Stop boot flag set. System cannot boot.	This message accompanies those warnings that prevent the system from booting. Look up the accompanying message and take appropriate action.
WARNING: Not enough memory to boot the OS.	Ensure that the minimum amount of memory is installed
WARNING: Setting DEFAULTS has failed.	The MFIOC chip failed. This failure requires replacing the EBU.
WARNING: Memory has been initialized but not tested as a result of FASTBOOT being enabled. To test memory, use the 'FASTBOOT' command in the CONFIGURATION menu and reboot the system.	Disable FASTBOOT by the 'Fastboot OFF' command in the CONFIGURATION menu and reboot.
WARNING: The processor has failed selftest due to a co-processor failure.	This condition requires replacing the EBU.
WARNING: The processor has failed selftest.	A processor selftest failure requires replacing the EBU.
WARNING: One or more memory banks were not configured due to a SIMM size mismatch or a SIMM failure. For more details, use the MEMORY command in the INFORMATION menu.	Use the MEMORY command in the INFORMATION menu to determine correct configuration.
WARNING: The Bus Converter has failed.	A Bus Converter failure requires replacing the EBU.

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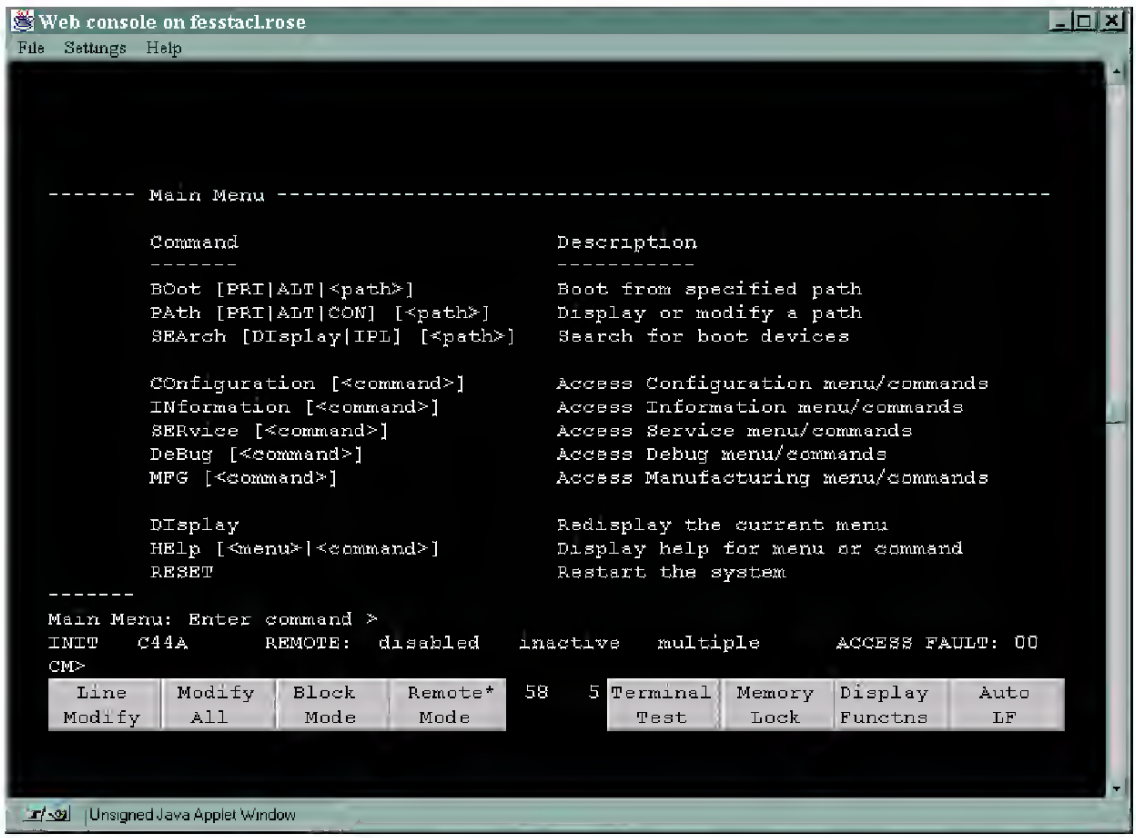
Firmware Warning Messages	Description/Action Required
WARNING: FAN FAILURE HAS BEEN DETECTED. THE SYSTEM WILL BE POWERING DOWN. PLEASE CALL YOUR SERVICE REPRESENTATIVE	A chassis fan failure requires replacing the EBU.
ERROR: A3342A AP Card must be in bottom slot only.	Move the AP A3342A card to the bottom slot.
ERROR: HSC card in wrong slot. Move to bottom slot.	A mix of HSC and PCI cards has been detected. The HSC card must be installed in the bottom slot.

Chassis Code Summary

Operating Status (OSTAT) and chassis codes are generated by A-Class server firmware. OSTAT and chassis codes can be read from stored locations or viewed 'real time' via the HSC Remote Management card.

Chassis codes displayed during selftest only appear at the console. They will appear on either the ASCII console or the Web console. Below is an example of how chassis codes appear in response to a 'control b' key sequence:



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The HSC Remote Management card shows status information on the console just above the function key display (shown above) and is followed by the CM> prompt. The information displayed is shown below:

OSTAT	Chassis Code	REMOTE :	stat us	activit y	password	ACCESS FAULT:

CM>

HSC Remote Management status information is defined as follows:

Status Code	Definition
OSTAT	Operating STATus. Values can be OFF, FLT, TEST, INIT, SHUT, WARN RUN and ALL.
Chassis	A four digit field used in conjunction with OSTAT to identify system status. The first digit of a chassis code is the Major Code Category value.
REMOTE:	REMOTE modem port. Three fields describe the Remote modem port. • enabled/disabled: Remote modem port is connected or not connected. • active/inactive: Remote modem port is working or idle. • single/multiple: Number of attempts to enter the password.
ACCESS FAULT:	Number of failed attempts to access the HSC Remote Management Card.

For more information on the HSC Remote Management card, refer to the HSC Remote Management/Access Port Card information in the Reference section.

During selftest, OSTAT and chassis codes are generated and stored by the server firmware. These chassis codes can be viewed even if an HSC Remote Management card is not installed. To view power on chassis codes, either type `ser cc` at the firmware main menu, or change to the Service Menu and type `cc`.

A display of OSTAT and chassis codes are shown in the following example:

Chassis codes used in conjunction with the OSTAT value represent the status of the system:

```
Service Menu: Enter command > cc


CHASSIS CODES INFORMATION


    Chassis Code
```


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```
    INIT C4CC
    INIT C4CD
    INIT 3002
    TEST 30BC
    INIT 30BC
    INIT C300
    TEST 1030
<Press any key to continue (q to quit)> q
Service Menu: Enter command >
```

- OSTAT values of TEST and INIT are common during selftest.
- OSTAT values of RUN and SHUT are common when the HP-UX operating system is running.
- OSTAT values FLT, OFF, and WARN are used to indicate when the server firmware has failed a test or detected a problem that does not keep selftest from finishing.

If a fault prevents the server from completing selftest, the OSTAT FLT is used and the Chassis Code displays the test number that failed. If the server stops responding while performing a test, the OSTAT value will be INIT or TEST and the chassis code represents the test that was running when the server failed.

Refer to the table below to determine which tests were active when the system either faulted or stopped responding during selftest, and the corrective action to take in response to the problem.

Major Code Category	Description	Corrective Action
1xxx	CPU/TLB Tests	Refer to Replacing an A-Class Server Exchange Base Unit (EBU)
2xxx	SLC Tests	Refer to Second Level Cache Memory Module Fault.
3xxx	PDH Tests	Refer to Replacing an A-Class Server Exchange Base Unit (EBU)
4xxx	Late Selftest	Refer to Replacing an A-Class Server Exchange Base Unit (EBU)
5xxx	Bus Transactions	Refer to I/O Subsystem or I/O Board Fault
6xxx	Unused	NA
7xxx	Memory Tests	Refer to Second Level Cache/RAM Memory Module Faults
8xxx	I/O Device Codes	Refer to I/O Subsystem or I/O Board Fault

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Major Code Category	Description	Corrective Action
9xxx	Console Initialization	Refer to Troubleshooting the ASCII Console or Troubleshooting the Secure Web Console
Axxx	Boot Device Initialization	Refer to Troubleshooting Embedded Disks
Bxxx	O.S. Panic Codes	Refer to http://docs.hp.com for Operating System Faults and Recovery
C2xx	Memory Initialization	Refer to Second Level Cache/RAM Memory Module Faults
C3xx	Extended processor tests	Refer to Replacing an A-Class Server Exchange Base Unit (EBU)
C4xx and C6xx	Console Init.	Refer to Troubleshooting the ASCII Console or Troubleshooting the Secure Web Console
C5xx	Primary Path Boot Codes	Refer to Troubleshooting Embedded Disks
C7xx	Non-Primary Path Boot Codes	Refer to I/O Subsystem or I/O Board Fault
C8xx - CAxx	Unused	NA
CB0x	TOC Codes	Refer to http://docs.hp.com for Operating System Faults and Recovery
CBxx	HPMC Codes	Contact HP
CDxx	Bus Init	Refer to I/O Subsystem or I/O Board Fault
Dxxx	O.S. Shutdown Codes	Refer to http://docs.hp.com for Operating System Faults and Recovery
Exxx	O.S. Warning Codes	Refer to http://docs.hp.com for Operating System Faults and Recovery
Fxxx	OS Run Codes	Refer to http://docs.hp.com for Operating System Faults and Recovery

Troubleshooting the ASCII Console

The ASCII Console is typically a "dumb" monochrome terminal that serves as the communication link between the A-Class server and the system operator. At power on, the server's selftest software tests server internal components and external peripherals to determine the operational status of each. The ASCII Console displays the operational status of all components and peripherals, including its own, on the console screen. The screen will display selftest data output in one of two ways:

If an HSC Remote Management card is installed, the output appears at the bottom of the screen and is updated until selftest is complete and the firmware Main Menu screen appears.

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If an HSC Remote Management card is not installed, there will be no output to the console screen until selftest completes.

If the ASCII console does not respond to input or does not display any output:

- Make sure that the ASCII console is correctly connected to the server. Refer to Chapter 2.
- Make sure that the LAN Web Console is NOT connected. If it is, instead of going to the ASCII console, output will re-directed to the LAN Web Console.
- Make sure the keyboard is correctly connected to the ASCII console.
- Cycle power to the ASCII console.
- Return configuration settings to default by pressing the appropriate soft keys on the keyboard. Consult the Operator's Manual for the specific soft keys to press and the correct sequence. When the correct soft key sequence is entered, the DATACOM settings will be:

Baud: 9600	Parity/DataBits: None/8	EnqAck: Yes
Asterisk: OFF	Chk Parity: No	SR(CH): Lo
RecvPace: Xon/Xoff	XmitPace: None	CS(CB)Xmit: No

- Make sure REMOTE MODE is ON (asterisk appears in REMOTE MODE block on the screen) and AUTO Line Feed is OFF (asterisk does NOT appear in AUTO LF block on the screen)
- Replace the ASCII console with a known good console.
- Try the LAN Web console. If the LAN Web console works but the ASCII console does not, or neither console works, the system board is the problem. To change the system board, you must replace the A-Class Exchange Base Unit (EBU). Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section.

If you have an HSC Remote Management card installed and the ASCII console works but the control B function does not, check the position of the SERVICE/NORMAL switch on the HSC Remote Management card. This switch must be in the SERVICE position to enable the control B function. If the control B function does not restore, replace the HSC Remote Management card. Refer to the A-Class Server I/O Card Removal and Replacement section.

NOTE The control B function is unique to the HSC Remote Management card. If you do not have an HSC Remote Management card installed, the control B function is not available.

Troubleshooting the Secure Web Console

The Secure Web Console is typically a "dumb" monochrome terminal that can serve as the communication link between the A-Class server and the system operator, as a substitute for the ASCII Console. At power on, the server's selftest software tests server internal components and external peripherals to determine the operational status of

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each. The Secure Web Console displays the operational status of all components and peripherals, including its own, on the console screen. The screen will display selftest data output in one of two ways:

If an HSC Remote Management card is installed, the output appears at the bottom of the screen and is updated until selftest is complete and the firmware Main Menu screen appears.

If an HSC Remote Management card is not installed, there will be no output to the console screen until selftest completes.

NOTE The Integrated LAN Web Console will be referred to as the Web console in this section.

The A-Class server front panel LEDs do not indicate Web console failures. There are no blinking codes to show the source of a web console fault.

To troubleshoot the Web console:

1. Make sure that a LAN cable is inserted into the LAN Web Console connector on the rear of the server. Refer to Chapter 2.
2. Log in to the Web console as the Administrator and check the DATACOM configuration. It should be:

Baud Rate:	9600
Parity/Data Bits:	None/8
Parity Checking:	Enable should be off
Recvpace/Xmitpace:	Xon/Xoff should be off

NOTE Remember to use SAVE to retain any changes that you make.

3. Reset the Web console.
   a. Type the IP address of the Web console in your web browser's location window and press **Enter**.
   b. When the Web console page appears, log in.
   c. Click on the `Reset Web Console` option.

NOTE Resetting the Web console will log any other users off of the system.

4. Ping the IP address of the Web console to make sure it responds. If it does not respond, contact your network administrator.
5. Reset the Web console to its default configuration by pressing the Web Console Reset button while toggling the server's power switch to OFF then ON. Do not release the Web Console Reset button until selftest completes (the only front panel LED lit is the green POWER LED).

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NOTE Resetting the Web console to its default configuration will require the Web console to be reconfigured. Refer to Chapter 2 for the procedure.

6. Connect an ASCII console to the RS232 port on the rear of the server and remove the LAN cable from the LAN Web console port on the rear of the server. Refer to the Troubleshooting the ASCII Console section for ASCII Console operation tips. If the ASCII console works, but the Web console does not, the problem is with the system board. To change the system board, you must replace the A-Class Exchange Base Unit (EBU). Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section.
7. If neither the ASCII nor the Web consoles work, the system board is the problem in this case, also. Refer to the Replacing an A-Class Server Exchange Base Unit (EBU) section.

NOTE If you can access the console but do not get a prompt, it may be that you do not have write access to the console. Multiple users may have access to the console (read access) at the same time, but only one user can write to the console at a time. To see which user has write access to the console, look at the Web console main screen. The user whose name is underlined has write access to the console. Write access can only be taken, not given. To acquire write access, press ctrl F12. Your username will now be underlined and you will be able to enter commands into the Web console system. Everyone else is excluded from writing to the console, but everyone on the system has read access.

Troubleshooting Embedded Disks

The A-Class server will support a maximum of two internally installed and connected disk drives, commonly referred to as embedded disks. Embedded disks contain both the server's startup (bootstrap) software and Operating System software. Though embedded disks are installed internally, the server's front panel LEDs do not reflect disk status and therefore will not blink in a code pattern to indicate an embedded disk selftest failure. Also, embedded disks do not have an individual fault LED to show operational status.

If the system cannot boot from an embedded disk, an Input/Output Dependent Code (IODC) error occurs. The example provided below starts with entry of the boot command and shows the messages that will be displayed on the console.

```
Main Menu: enter command > bo pri

Interact with IPL (Y, N, or Cancel)? > y

Booting...
Cannot find ENTRY_TEST

Failed to initialize.

ENTRY_INIT
Status = -10
```


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```
FFFFFFF6 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000012 00000000 00000000 454E4841
00000000 00000000 454E4841 00000000 00000000 00000000 00000000
00000100 00000000 00000000 00000000

Failed to Initialize
```

To troubleshoot a recurring embedded disk fault:

1. Use a mapping tool to verify that the embedded disk is recognized by the server's bootstrap software. To verify server recognition, type sea at the firmware Main Menu prompt. The server will display a list of bootable devices on the console. Check this list for the paths of embedded disks: 8/16/5.6 and 8/16/5.5.
2. If the embedded disk is not recognized by the server, make sure that power is applied to the disk. You can refer to either the A-Class Server Disk Drive Removal and Replacement section, or look at the label under the top of the server cover, to locate the power cable.
3. Make sure that all the disks on the same bus have unique addresses. Refer to the label on top of the disk housing for an address jumper diagram.
4. Check disk configuration jumper settings. Make sure the TERMINATION ENABLED jumper is removed.
5. If steps 1-4 do not correct the problem, replace the embedded disk.

Off-line Diagnostic Environment (ODE) and Support Tools Manager (STM) software can also be used to troubleshoot embedded disk faults. Use mapping utilities (Mapper) to verify that the disks are recognized by the server. Password-protected disk expert tools are available via ODE and STM.

NOTE Only licensed self-maintenance technicians and HP service personnel have access to the diagnostic passwords required for access to ODE and STM software, and disk expert tools.

If you are unfamiliar with the usage of HP diagnostic tools, refer to the following: Diagnostic/IPR Media User's Guide

Troubleshooting LAN

When connected to a hub, the 10 Base-T LAN on A-Class servers should automatically negotiate the proper speed. If this auto-negotiation fails, the server will not connect to the hub. Should this symptom occur, replace the EBU. Be sure to use an EBU with part number A5182-69101 or later.

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A-Class Server Corrective Action

Overview

Many of the components that comprise an A-Class server are field-replaceable. You can troubleshoot the server, identify the defective component, and replace it at your site.

This section contains links to parts ordering information, and removal and replacement instructions for each field-replaceable component.

Click on the title of the procedure that you want to review:

- Ordering Repair Parts for the A-Class Server
- A-Class Server RAM Removal and Replacement
- A-Class Server Cache Memory Removal and Replacement
- A-Class Server Disk Drive Removal and Replacement
- A-Class Server I/O Card Removal and Replacement
- Replacing an A-Class Server Exchange Base Unit (EBU)

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Ordering Repair Parts for the A-Class Server

Overview

Repair parts ordering methods vary widely among the world-wide locations that HP serves. Please call either your local HP Response Center or your authorized HP Service Representative for the ordering procedures for your location. Ensure that you have the part and model numbers available to expedite service.

The table shown below contains the replacement part number, the exchange part number, and a description of the A-Class server Field Replaceable Units (FRUs) that you can order and install yourself.

Table 3-1 A-Class FRUs

Replacement Part Number	Exchange Part Number	Description
A5182-67001	A5182-69201	A-Class Exchange Base Unit (EBU)
A2580-60001	A2580-69001	64MB SIMM
A3398-60014	A3398-69014	128MB SIMM
A3737-60001	A3737-69001	256MB SIMM
A5182-60002	NA	512MB Cache Memory SIMM
A3352-60002	A3352-69003	4GB Single Ended SCSI Disk
A4912-67001	A4912-69001	9GB Single Ended SCSI Disk
A5560-67001	A5560-69001	18GB Single Ended SCSI Disk
J3592-60101	NA	PCI 8-port MUX
A4800-60001	A4800-69001	PCI Single Port Ultra SCSI Card
A5159-60001	NA	PCI Dual Port Ultra SCSI Card
A5149-60001	NA	PCI Single Port Ultra SCSI Card
B5509-66001	NA	PCI Single Port 10/100bT LAN Card
A5506-60101	A5506-69101	PCI Quad Port 10/100bT LAN Card
J3516-60004	J3516-69004	HSC Dual Port 100b TX LAN Card
J3516-60024	NA	HSC Dual Port 100b FX LAN Card
A3262-60011	A3262-69311	HSC Access Port Card

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Table 3-1 A-Class FRUs (Continued)

Replacement Part Number	Exchange Part Number	Description
A2874-66005	A2874-69006	HSC Fast Wide SCSI Card

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A-Class Server RAM Removal and Replacement

Overview

This section provides step-by-step instructions and general installation rules for removing and replacing RAM boards in the A-Class Server. The following subsections apply:

- RAM Removal
- RAM Replacement
- RAM Removal and Replacement Rules

CAUTION The procedures in this section require opening the system cabinet and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the cabinet. Failure to follow these precautions may result in component damage or loss of system reliability.

Electrostatic Discharge Precautions

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

Step 1. Perform system backup.

Step 2. Shut down the operating system.

Step 3. Power down the system.

Step 4. Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

Step 5. Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

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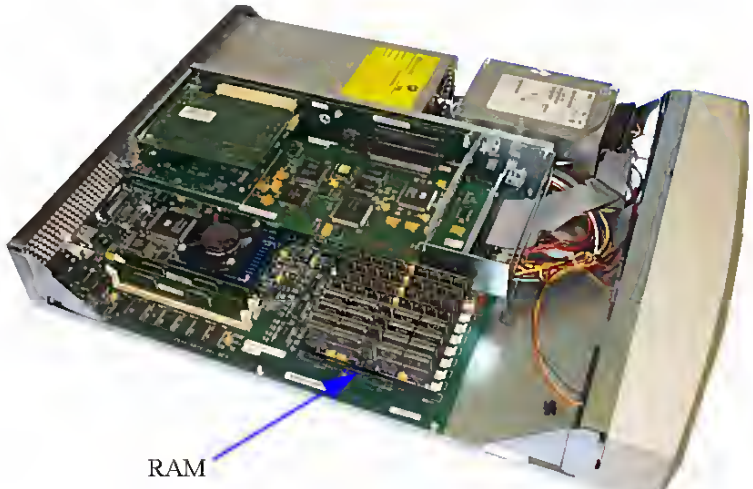
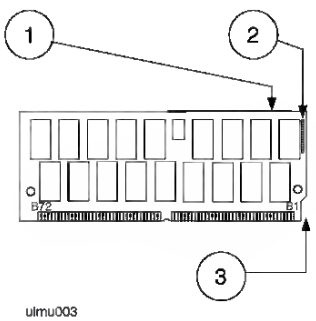
RAM Removal



NOTE Before you remove any memory, note the location of the slot from which the memory is being removed, and the size of the RAM (marked on one side near an upper corner) being removed.

This information will be needed for the installation process.



1. Each RAM board has its size marked on one side of the board near an upper corner: 16MB, 32MB, 64MB, 128MB, or 256MB. (In the illustration shown, the marking is on the reverse side of the board.)
2. The white stripe on the end of the board identifies the end of the board that must be toward the white ejector lever.
3. The notch at the lower corner of the board also indicates the end of the board that must go toward the white ejector lever.

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CAUTION Always handle RAM boards by their edges. Failure to comply with this precaution may result in damage to the RAM.

Step 1. Open the ejector levers (down position) on each side of the RAM.

Step 2. Grasp the RAM by the edges and lift straight up.

Step 3. Set it carefully on the grounding mat.

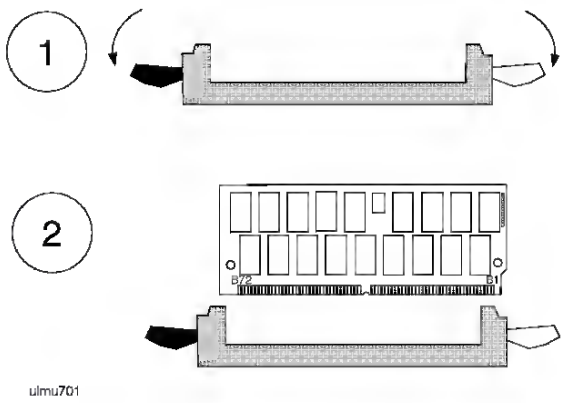
RAM Replacement

CAUTION Keep RAM boards in their protective anti-static bags until you are ready to install them. Always handle RAM boards by their edges after you have removed them from their protective anti-static bags. Be sure that an anti-static wrist strap is still attached to your wrist and grounded to the cabinet main chassis when you handle and install RAM boards. Failure to follow these precautions may cause damage to the RAM.

Individual RAM board replacement procedures are described below. The illustrated panels that follow depict the replacement process:

Step 1. Open the ejector levers (down position).

Step 2. Orient the RAM board with the white stripe on the card toward the white ejector lever. Insert the RAM board into the connector until the fingers on the card edge just touch the connector.



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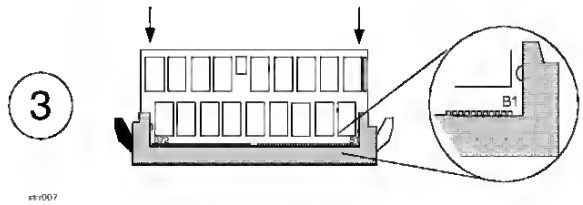
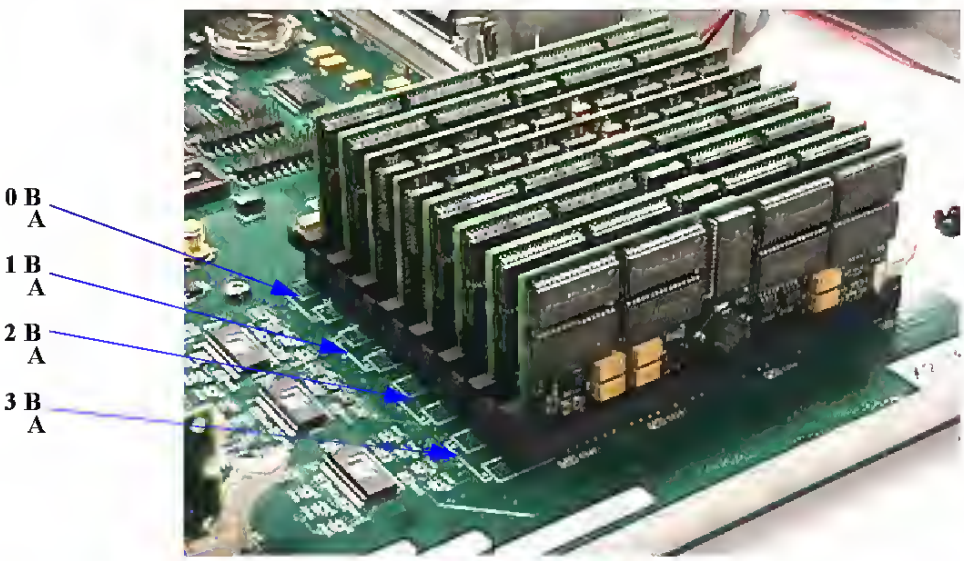
Step 3. Push the RAM board firmly and evenly into the connector until it clicks into place.



RAM Removal and Replacement Rules

- RAM boards are installed in pairs. However, if a defective board has been isolated, it may be replaced individually with a board of the same size. For example, a 128MB board must be replaced with another 128MB board.
- Memory is installed in the following increments:
  - — 128MB (two 64MB RAM boards)
  - — 256MB (two 128MB RAM boards)
  - — 512MB (two 256MB RAM boards).
- The smallest RAM pair must be installed in the lowest numbered slots, followed by the next larger pair in the next two slots until all slots are filled. Memory slots are configured in the order shown below:



- If a memory pair is to be installed that is larger than the largest RAM pair of the existing configuration: remove, reorder, and reinstall all pairs according to the rules listed above.

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A-Class Server Cache Memory Removal and Replacement

Overview

This section provides step-by-step instructions for removing and replacing Cache Memory boards in the A-Class Server. In addition, instructions are included for changing product identification number labels if more Cache Memory is ordered for installation.The following subsections apply:

- Cache Memory Removal
- Cache Memory Replacement
- Cache Memory Labels

CAUTION The procedures in this section require opening the server and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the server. Failure to follow these precautions may result in component damage or loss of system reliability.

Electrostatic Discharge Precautions

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

Step 1. Perform system backup.

Step 2. Shut down the operating system.

Step 3. Power down the system.

Step 4. Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

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Step 5. Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

Cache Memory Removal

CAUTION Always handle Cache Memory boards by their edges. Failure to comply with this precaution may result in damage to the board.

Step 1. Open the ejector levers (down position) on each side of the Cache Memory board.

Step 2. Grasp the Cache Memory by the edges and lift straight up

Step 3. Set it carefully on the grounding mat.

Cache Memory Replacement

CAUTION Keep Cache Memory boards in their protective anti-static bags until you are ready to install them. Always handle Cache Memory boards by their edges after you have removed them from their protective anti-static bags. Be sure that an anti-static wrist strap is still attached to your wrist and grounded to the server main chassis when you handle and install Cache Memory boards. Failure to follow these precautions may cause damage to the Cache Memory.

NOTE There is no order of precedence for installing Cache Memory boards. The two boards may be installed in any order and do not have to be replaced in pairs if the defective board can be isolated. Otherwise, replace the pair of boards.

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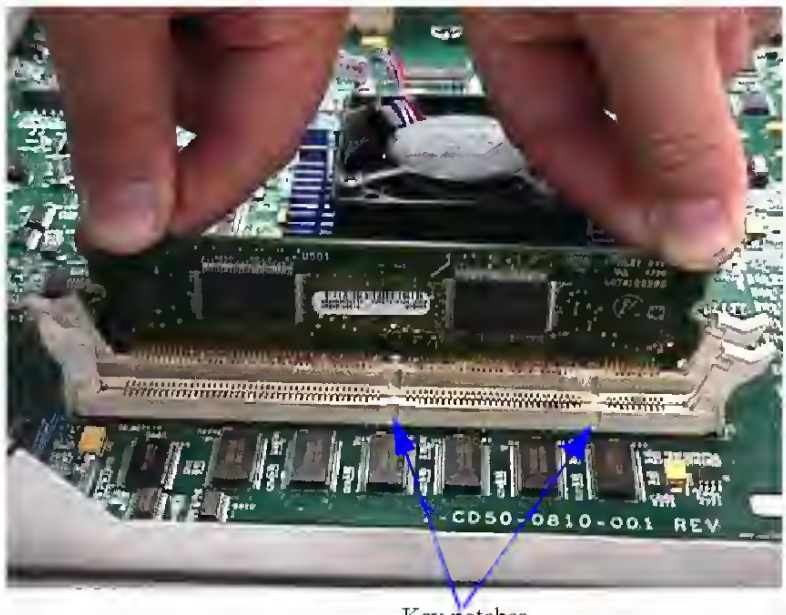
NOTE A-Class servers can only use Cache Memory SIMMs with part number A5182-60002. Using Cache Memory SIMMs with any other part number may result in the server failing it's selftest.

Cache Memory board replacement procedures are described as follows:

Step 1. Open the ejector levers (down position).

Step 2. Note the two key notches on the Cache Memory board. One key notch is in the center and one is toward the side. Orient the board so that the side key notch is toward the server front, matching the keys in the connector.

Step 3. Align the board notches with the connector keys, fit the bottom sides of the board into the ejector lever slots, and insert the board into the connector.



Key notches

Step 4. Push the Cache memory board firmly and evenly into the connector until it clicks into place. The ejector levers will automatically close.

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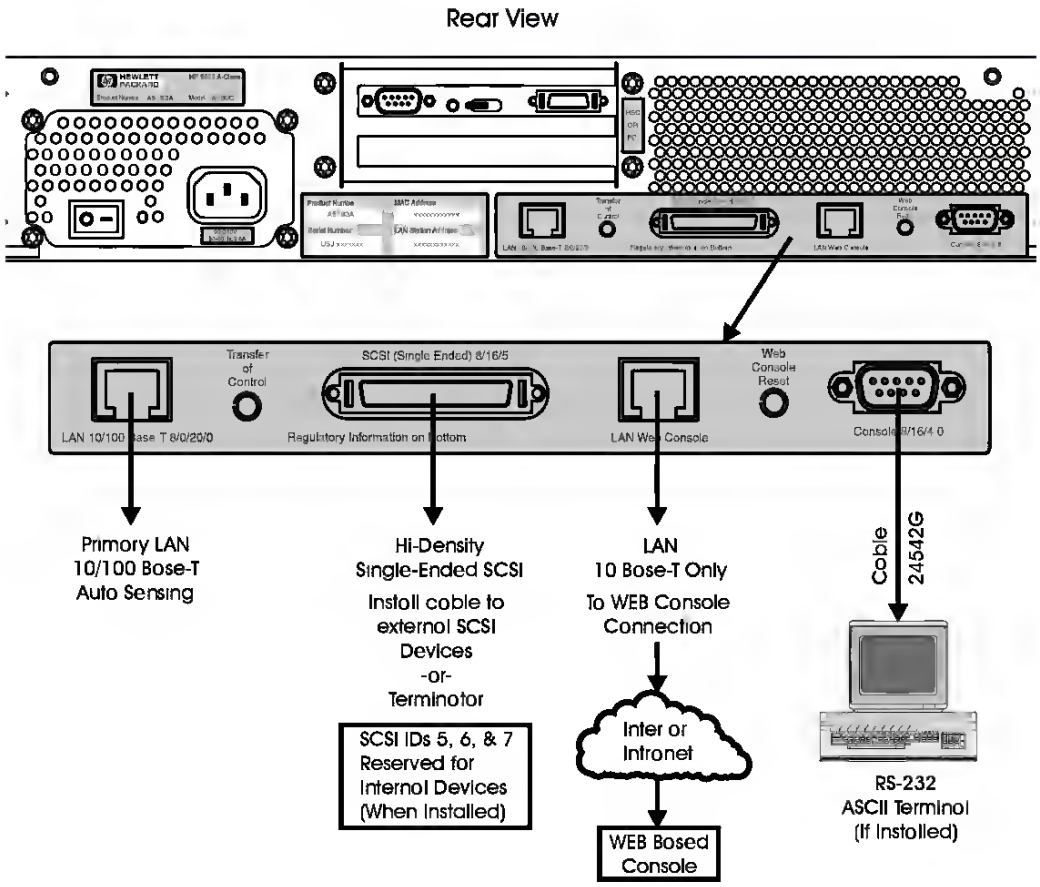
Cache Memory Labels

If cache memory is ordered as an upgrade to the base product, two product identification numbers must be changed. Locate the sheet that contains the new labels and affix them according to the following procedure:



Step 1. Peel the Product number label from the sheet and place it over the corresponding label on the rear of the server.

Step 2. Peel the Model number label (includes the HP logo) from the sheet and place it over the corresponding label on the rear of the server.

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A-Class Server Disk Drive Removal and Replacement

Overview

This section provides step-by-step instructions for removing and replacing the Disk Drive Bracket and Disk Drives in the A-Class Server. The following subsections apply:

- Remove the Bracket Containing the Disk Drive(s)
- Remove the Disk Drive(s)
- Disk Drive Replacement

CAUTION The procedures in this section require opening the system cabinet and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the cabinet. Failure to follow these precautions may result in component damage or loss of system reliability.

Electrostatic Discharge Precautions

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

Step 1. Perform system backup.

Step 2. Shut down the operating system.

Step 3. Power down the system.

Step 4. Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

Step 5. Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

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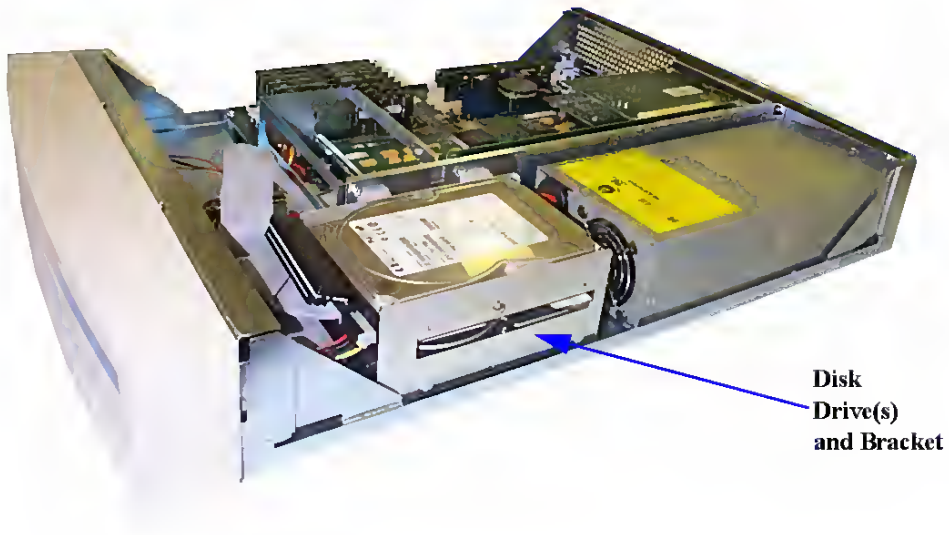
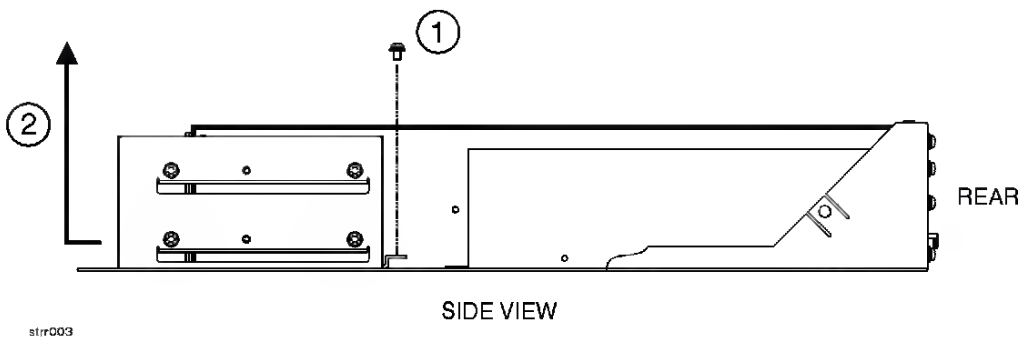
Disk Drive and Bracket Removal



Remove the Bracket Containing the Disk Drive(s)

Step 1. Remove the mounting screw that attaches the disk drive bracket to the bottom of the chassis.

Step 2. Slide the disk drive bracket (containing the disk drives) to the rear until it clears the anchor tabs, lift it out of the chassis, and place on a grounding mat.



Remove the Disk Drive(s)

Step 1. Disconnect disk drive cables. Observe the following for later reassembly:

a. Each disk drive power cable connector has rounded top corners that match the power cable receptacle to ensure that the connection is made correctly.Each disk drive ribbon cable connector has a key centered on top that fits into a slot on the data cable receptacle to ensure that the connection is made correctly.

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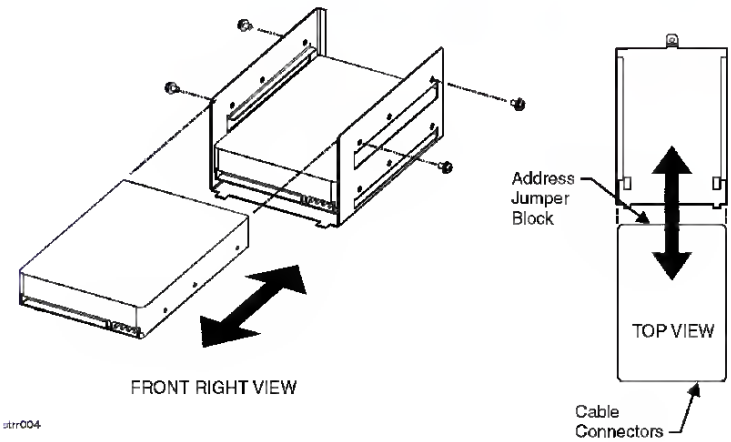
b. Note the disk drive jumper settings on the front of the drive that you are removing in order to reset the replacement drive to the same jumper configuration.

Step 2. Remove the screws from the bracket on both sides of the defective disk drive.



a. If the defective disk drive is on top, either slide the unit out of the bracket or lift it straight up.

b. If the defective disk drive is on the bottom, slide the unit out of either end of the bracket.

Disk Drive Replacement

CAUTION DO NOT install a single disk drive on the top rails of the bracket. Always install a single disk drive on the bottom rails. Failure to follow this precaution may cause damage due to excessive vibration.

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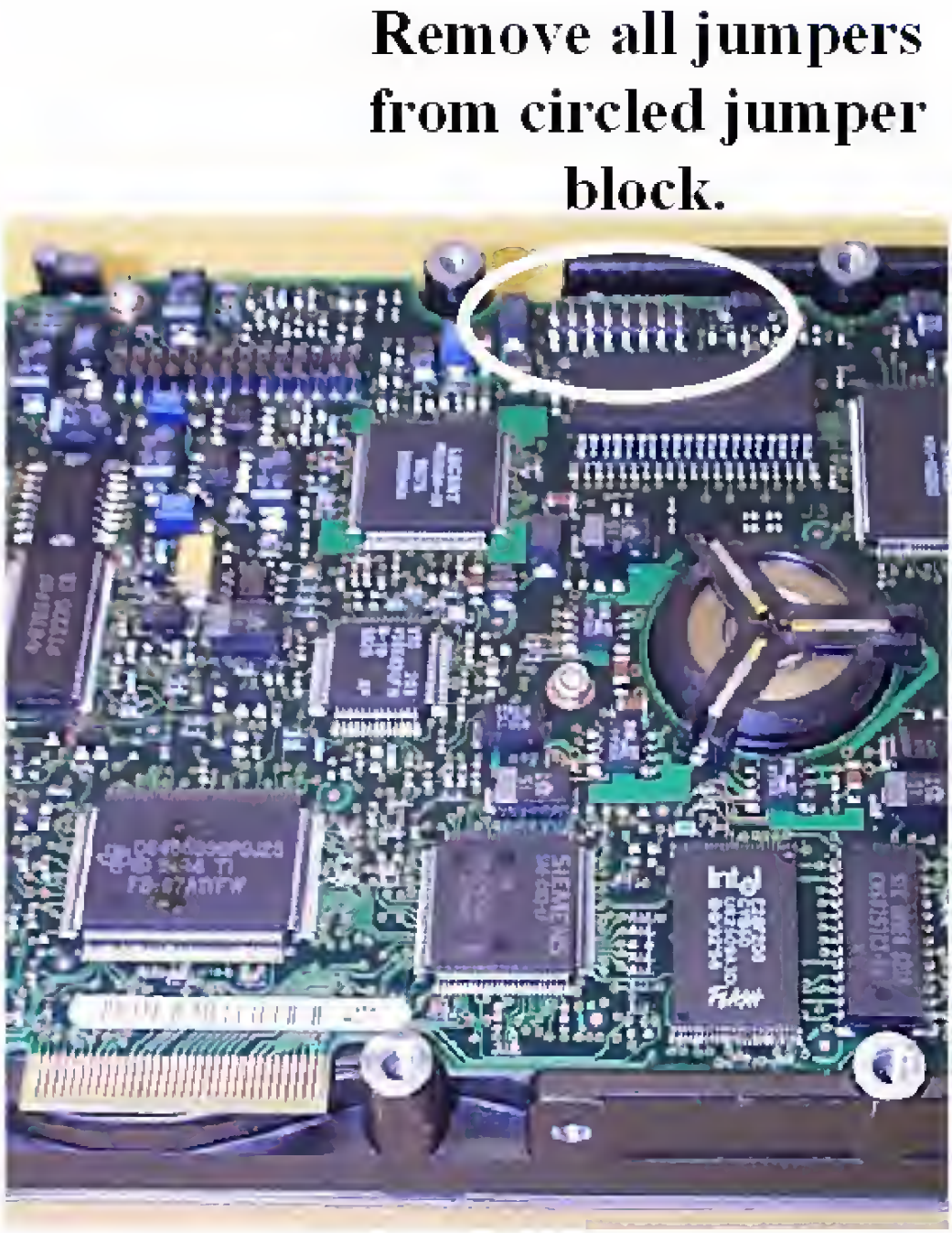
When reinstalling disk drives, ensure that the SCSI IDs are set correctly.



The following illustration shows *typical* setting of the disk drive ID.

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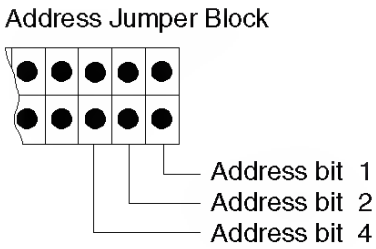
NOTE This illustration of ID jumper settings is typical. Your drive may be different. Consult the literature and labels on your drive for ID setting instructions.

Set the upper drive to ID to 5

Set the lower drive to ID to 6



Step 1. To Re-install the disk drive(s) follow the removal instructions in reverse.

a. re-cable the disk drive(s),

CAUTION Ensure that cables are connected correctly:

— Match the ribbon cable connector key with the slot on the receptacle.

— Match the rounded corners of the power cable connector with the rounded corners of the receptacle.

Failure to observe these precautions may result in bent or broken pins.

b. remount the disk drive(s) in the bracket, and

c. reinstall the bracket in the server.

NOTE Lift either side of the disk bracket to ensure that the tabs on the bracket are seated properly in the slots provided.

The following illustration shows the SCSI address jumper settings for the disk drives.

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A-Class Server I/O Card Removal and Replacement

Introduction

This section provides card load order rules and step-by-step instructions for removing and replacing I/O cards in the A-Class Server. The following subsections apply:

- Card Load Order Rules
- I/O Card Removal
- I/O Card Replacement

CAUTION The procedures in this section require opening the system cabinet and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the cabinet. Failure to follow these precautions may result in component damage or loss of system reliability.

Electrostatic Discharge Precautions

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

Step 1. Perform system backup.

Step 2. Shut down the operating system.

Step 3. Power down the system.

Step 4. Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

Step 5. Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

Card Load Order Rules

Card	Rule
Access Port (AP) card	Must go in the bottom slot.
One HSC card and one PCI card	HSC card must go in the bottom slot

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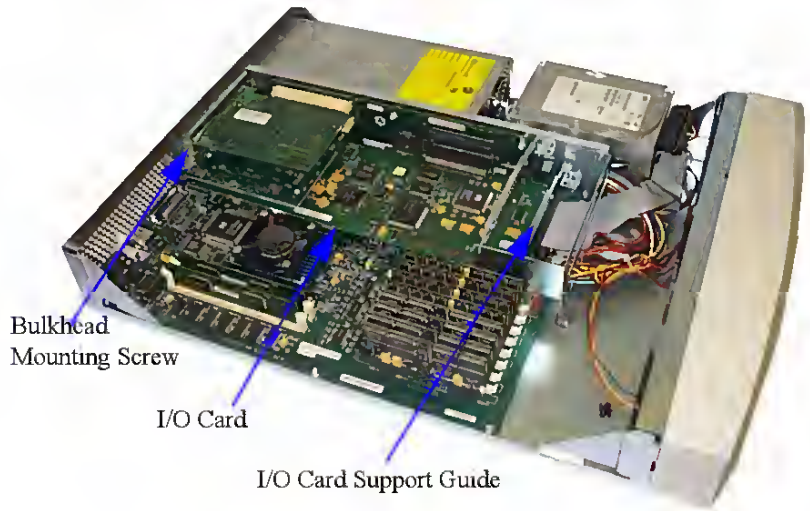
Card	Rule
All PCI or all HSC cards	Load order doesn't matter.

I/O Card Removal



CAUTION Always handle I/O cards by their edges. Failure to comply with this precaution may result in damage to the card.

Step 1. Remove the card support guide screws, then remove the card support guide.

Step 2. Loosen the mounting screws that secure the bulkhead to the inside of the server chassis. Lower the bulkhead end of the I/O card so that it is free.

Step 3. Carefully pull the I/O card away from the connector on the backplane and set it on the grounded mat.

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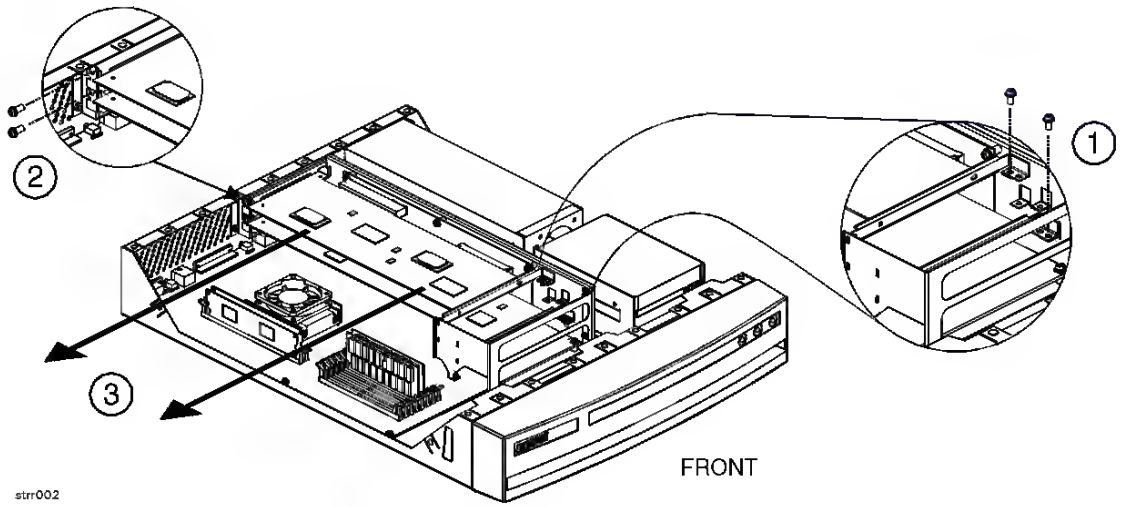
NOTE If two I/O cards are present and the bottom card is to be removed, remove the top card first.



I/O Card Replacement

CAUTION Keep I/O cards in their protective anti-static bags until you are ready to install them. Always handle I/O cards by their edges after you have removed them from their protective anti-static bags. Be sure that an anti-static wrist strap is still attached to your wrist and grounded to the cabinet main chassis when you handle and install the I/O card. Failure to follow these precautions may cause damage to the I/O card.

I/O card replacement procedures are described as follows:

Step 1. Carefully insert the I/O card into the backplane connector. The tab on the bulkhead will slide into its slot in the chassis.

Step 2. Attach the card support guide to the front edge of the I/O card, hook the tab into its slot, and secure the support guide with the mounting screw.

Step 3. Slide the bulkhead slotted tab up into position between the captive screw and chassis, and tighten the captive screw.

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Replacing an A-Class Server Exchange Base Unit (EBU)

Overview

When troubleshooting a defective A-Class server has determined that the fault lies in a portion of the server that cannot be replaced at the site, field-replaceable components must be removed prior to exchanging the defective server for an operational unit. This "stripped-down" server is the EBU.

The following subsections apply:

- Removable Components
- Move the Components to the EBU
  - — Apply New Labels
  - — Labels Applicable to the A5183A (A180C) EBU
- Reinstall the System
- Restart the System

Ensure that you obtain required Web Console configuration data (user names and passwords, IP address, etc.) prior to replacing the EBU.

NOTE Web Console user login information and passwords are not retained by, and cannot be acquired by, the Web Console. This information is kept by the Web Console Administrator or System Manager.

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The following configuration information can be obtained from the Web Console Main Menu:

- IP Configuration:
  - — Secure Console Name
  - — IP Address
  - — IP Subnet Mask
  - — IP Gateway
  - — System Name.
- Datacomm Configuration:
  - — Baud Rate
  - — Parity/Data Bits
  - — Parity Checking
  - — Recvpace/Xmitpace.

When the new EBU has been received, place the original system and the new EBU side-by-side on an ESD-protected work area. Now you can remove the FRUs from the original system and install them directly into the new EBU.

CAUTION The procedures in this section require opening the system cabinet and exposing the system to electrostatic discharge. Always observe all electrostatic precautions when working with components inside or out of the cabinet. Failure to follow these precautions may result in component damage or loss of system reliability.

Electrostatic Discharge Precautions

- Use a grounding mat and an anti-static wrist strap.
- Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.

Before You Do Anything...

Step 1. Perform system backup.

Step 2. Shut down the operating system.

Step 3. Power down the system.

Step 4. Unplug the server.

NOTE Cabinet-mounted servers must be removed from the cabinet before proceeding.

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Step 5. Remove the top of the server by unscrewing the knurled captive screws on each side of the rear of the server. Slide the top back, lift it off, and set it aside.

Removable Components

The components listed below must be removed from the defective server prior to exchanging it for an operational unit. Click on each name to link to the remove/replace instructions for that item.

- A-Class Server RAM Removal and Replacement
- A-Class Server Cache Memory Removal and Replacement
- A-Class Server Disk Drive Removal and Replacement

NOTE Do not remove disk drives from the bracket.

- A-Class Server I/O Card Removal and Replacement

NOTE As you remove the memory and I/O cards from the original system, note the slots from which they came. They must be installed in the same slots in the EBU to ensure that the system operates properly.

If you don't know the order in which the I/O cards were removed, refer to a recent ioscan (or other mapping utility) output. The information shown below can be used to match a path with an I/O card slot:

HSC Cards		PCI Cards	
Path	**Slot**	**Path**	**Slot**
8/4.x	Slot 1	8/0/1.x	Slot 1
8/8.x	Slot 2	8/0/2.x	Slot 2

Slot 1 is the TOP slot and slot 2 is the BOTTOM slot, when looking at the server from the rear. The "x" is an operator-input variable.

If you don't know the order of memory card removal, refer to the Memory Loading Rules on the label located under the server lid, attached to the top.

Move the Components to the EBU

The following paragraphs discuss how to transfer the components from the server to the EBU.

Unpack the EBU

When the new EBU is received, follow the directions in the *A-Class Server Unpacking Instructions* section.

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NOTE The contents in the new EBU carton may vary from those listed in the unpacking instructions section.

Install the Components in the EBU

After the new EBU has been unpacked, replace the components according to the instructions for each item listed in the *Removable Components* subsection.

Apply New Labels

Each new EBU is shipped with the following labels:

- A5182-84002: Plastic label with A5183A, A1880C, and HP logo markings.
- A5182-84004: Bar coded label with A5183A markings.
- A5182-84005: Three blank stickers.

After you have switched the original system FRUs to the new EBU, locate and apply the labels listed above to the corresponding area on the rear of the new EBU.

Labels Applicable To All Models First, copy the serial number, located on the server's rear label, from the original system to one of the blank stickers. The serial number is a 10 character number beginning with three alpha characters followed by seven numeric characters. For example:

USJ0009837

Place the new sticker with the original system serial number in the field marked "Serial Number" on the new EBU.

NOTE Serial numbers are used to verify Warranty and Hardware Support levels. ALWAYS transfer the serial number of the original system to the new EBU.

Next, copy the LAN station address, located on the server's rear label, from the original system to one of the blank stickers. The LAN station address consists of 12 alphanumeric characters.

NOTE DO NOT enter the "Web Console MAC Address" value, located just above the LAN station address. Enter the "LAN Station Address" value ONLY.

Place the new sticker with the original LAN station address in the field marked "LAN Station Address" on the new EBU.

The third blank sticker is an extra.

Labels Applicable to the A5183A (A180C) EBU

Locate the plastic sticker that contains the numbers, A5183A and A180C, and includes the HP logo. Paste it over the original label on the rear of the new EBU. The difference between labels is the modification of the model number from A180 to A180C.

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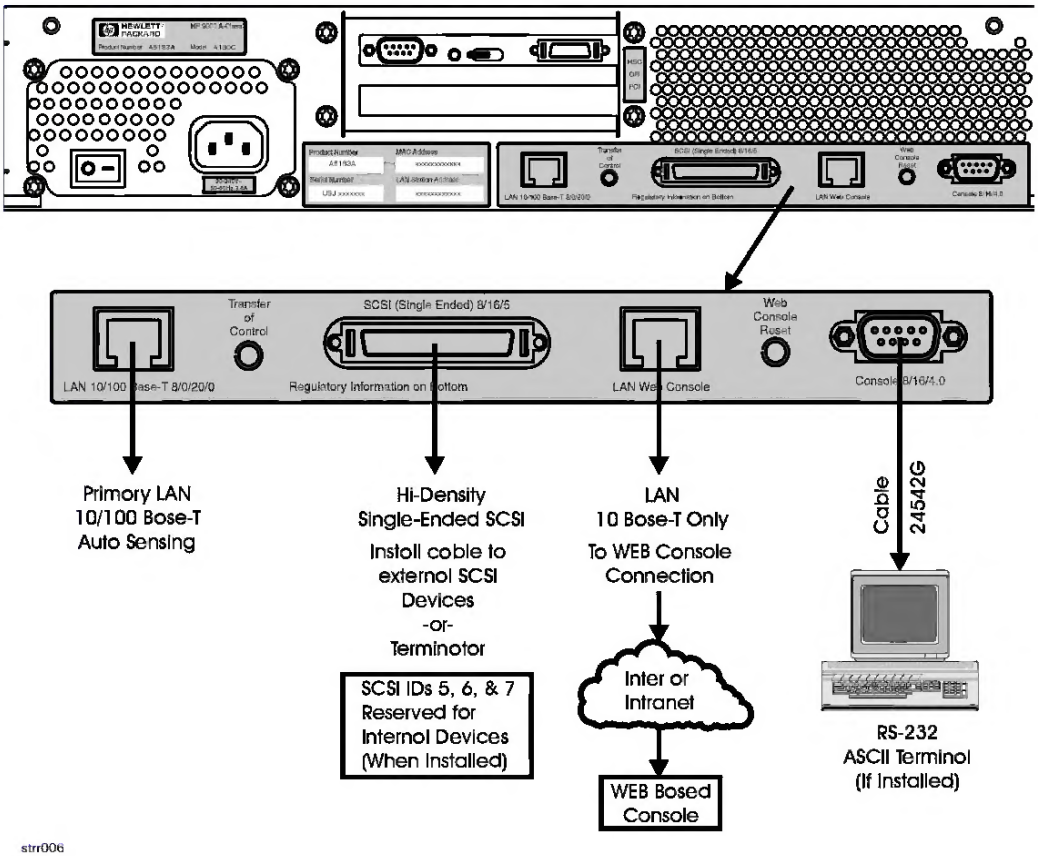
Locate the new bar coded sticker with A5183 markings and place it on the rear label of the new EBU in the field marked, "Product Number" (over the A5182 text).



Reinstall the System

If the replacement A-Class server is used as a single independent unit, refer to the Chapter 2, "A-Class Server Installation," on page 21 subsection of the *Stand-Alone A-Class Server Unpack and Install* instructions.

If the replacement server is to be re-installed in an HP-approved cabinet, refer to the Chapter 2, "A-Class Server Installation," on page 21 subsection of the *Cabinet-Mounted A-Class Server System Unpack and Install* instructions.

When the basic reinstallation procedures are complete, refer to the Chapter 2, "A-Class Server Installation," on page 21 instructions to reconnect the replacement server to external devices and power. This information is also found in the *Cabinet-Mounted A-Class Server System Unpack and Install* instructions.

Restart the System

Refer to the Chapter 2, "A-Class Server Installation," on page 21 section for applying power to and initiating selftest on both the server and other external devices, and booting the system.

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The integrated A-Class Web Console will require reconfiguring. Follow the Chapter 2, "A-Class Server Installation," on page 21 instructions in the *A-Class Server Power Up and Boot Procedures* section to complete this task.

When the replacement server is powered up and selftest has successfully completed, you will be prompted to enter the LAN Station Address. This is a one-time prompt that only occurs during the initial system configuration.

The terminal will display: `WARNING: The system LAN Station Address has not been set.`

```
The System LAN Station Address is not set.
WARNING: The LAN Station Address can be set one time only.

Set now [Y/N]?
```

Type **Y** and press **Enter**. `The "LAN Station Address" value is located on the rear of the system.`
`Do not enter the value for the "Web Console MAC Address".`

NOTE As it appears on the rear label, the LAN Station Address does not include a hyphen (-). However, a hyphen is required (for example: xxxxxx-xxxxxx) when entering the LAN Station Address at this prompt.

`This action cannot be undone.`
`Confirm LAN Station address 0060b0-83c41b [Y/N/Q(uit)]?` Type **Y** and press **Enter**.

The terminal will display: `The system has been initialized with LAN Station Address 0060b0-83c41b.`

NOTE The system will reset itself, re-run selftest, and perform a normal power-on selftest.

The replacement server is now ready to continue normal boot and power-up procedures.

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